ENTISTRY
LIBRARY
C.4

MAY 17 1948

PROPERTY OF
DENTAL LIBRARY
UNIVERSITY OF ILLINOIS
DO NOT ALIENATE OR
REMOVE

THE Journal OF THE AMERICAN DENTAL ASSOCIATION

APRIL-MAY 1948 • VOLUME 36 • NUMBER 4

CONTENTS

Graphing the Contour of Plaster Models . . *Krogh-Poulsen* 379

Dietaries of Primitive Peoples . . . . . *Klatsky* 385

Technic for Accurate Castings . . . . . *Hollenback* 391

Oral Use of Absorbable Gelatin Sponge . . . . . *Gwinn* 397

Editorials 402

Printing Plant Difficulties 402

National Health Assembly 402

Child Health and Dental Health Days 404

International Correspondence 405

News of Dentistry 407

Committee on Legislation 417

Council on Dental Therapeutics 423

Announcements 424

dental health program
for
elementary and secondary schools

A basic manual for use in organizing a community dental health program as part of an integrated general health program in which all of the community agencies have an opportunity to participate.

Sample copies may be obtained free of cost. Additional copies will sell for .15 each.

AMERICAN DENTAL ASSOCIATION

222 East Superior Street

Chicago 11, Illinois

The Journal of the American Dental Association, Vol. 36, No. 4. Published by the American Dental Association, 222 E. Superior St., Chicago 11, Ill. Yearly subscription $7.00 for U. S. and possessions; $8.00 for foreign countries. Single copy seventy-five cents. Entered as second-class matter, December 31, 1947, at the postoffice at Chicago, Ill., under the act of March 3, 1879. Published monthly. Copyright 1948 by the American Dental Association. The Journal of the American Dental Association is indexed in the Index to Dental Literature and, in part, in the Quarterly Cumulative Index Medicus, Biological Abstracts and Chemical Abstracts.

THE Journal OF THE
AMERICAN DENTAL ASSOCIATION

APRIL-MAY, 1948 • VOLUME 36 • NUMBERS 4 AND 5

TWO METHODS OF GRAPHING THE CONTOUR OF THE "MUCOSAL" SURFACE OF PLASTER MODELS

Willy G. Krogh-Poulsen,* Dr. med. dent., Geo. C. Paffenbarger,† D.D.S., and Irl C. Schoonover,‡ Ph.D., Washington, D.C.

METHODS of obtaining impressions of edentulous jaws generally have been compared by gross clinical observation. It is desirable, however, to get more exact information regarding the effect of different impression methods and materials on the shape of the soft elastic tissues of the jaws, since this effect seems to determine, to a certain extent, whether or not a denture will fit over a period of time. This could be accomplished by comparing the contour of the "mucosal" surface of various models of the same jaw obtained by identical and by different impression methods and materials. The method of comparison should give a reproducible and comparable visual representation of the curved surfaces of the models.

It is our purpose to describe two methods, both of which depend on obtaining graphs of the surface of the model along certain predetermined lines. In one method tracings of cross sections of the model are made; in the other method measurements of the surface contour are plotted.

No attempt has been made to apply the procedures to a large number of clinical cases in order to determine the amount of tissue displacement which might occur by use of certain impression materials. Both methods may be used with any impression material for both upper and lower jaws, edentulous as well as fully or partially dentulous. With suitable modifications the methods might be used also for comparisons of other curved surfaces.

Orientation of Models

Comparison of graphs of different models is possible only if the models are oriented in exactly the same way during measurement. The orientation of models of upper jaws only will be considered here.

The orientation is accomplished in the mouth of the patient by placing

This work was materially aided by grants-in-aid made to the Research Commission of the American Dental Association by the American Full Denture Society and the Academy of Denture Prosthetics.

*Guest worker at the National Bureau of Standards from Danmarks Tandaegehojskole (the Danish School of Dentistry), Copenhagen, Denmark.

†Senior Research Associate, American Dental Association, at the National Bureau of Standards.

‡Chief, Dental Materials Section, National Bureau of Standards.

three reference points along the median line. These three reference points are tatooed in the mucosa by puncturing its surface with an exploring point coated with india ink. The anterior reference point is placed just behind the papilla incisiva and the posterior point between the foveolae palatinae. The third reference point is placed between the other two points on the raphe palati (Fig. 1). The reference points are placed on the raphe because the soft tissue here is thin and firmly attached to the bone. Therefore it is not easily displaced, regardless of the impression method used.

An impression of the upper jaw is obtained with an individual tray and impression material by following exactly the directions for taking impressions with that material. Just before the tray with the impression material is placed in the mouth, the mucous membrane is wiped off with a cotton roll. A very small amount of paste, consisting of lampblack and glycerin, is placed on each of the reference points with an explorer or a hypodermic needle. This will be transferred to the impression material, and after removal of the impression from the mouth grooves or other marks

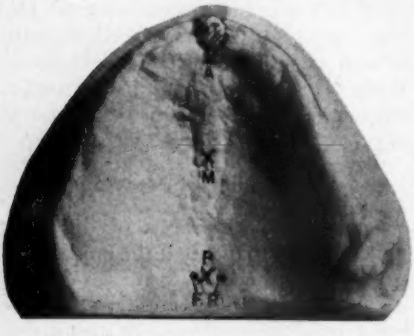

Fig. 1.—Plaster model of edentulous upper jaw with reference points on raphe palati. A—anterior, M—middle and P—posterior reference points; P. I.—papilla incisiva; F.P.—foveolae palatinae

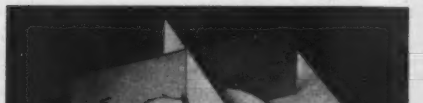

Fig. 2.—Orientation of a model. M, median sagittal reference plane; F, frontal plane; H, horizontal reference plane

are made on the transferred reference points, which then will appear on the plaster model.

It is essential always to use the same brand of plaster, as well as the same powder-water ratio, spatulation and casting technic in making the models, so that when they are compared the dimensional changes can be neglected.

Because of the curved shape of the hard palate, the three reference points can never be placed in a straight line. Therefore they determine a specific plane, the median plane or sagittal reference plane of the model (Fig. 2, M). The horizontal reference plane (Fig. 2, H) is perpendicular to the sagittal plane and intersects the middle and posterior reference points on the model. A frontal plane (Fig. 2, F) is one perpendicular to the two other planes. All models of the same mouth, marked with the same three reference points, therefore are oriented in the same way to the previously mentioned system of coordinates. For convenience, the models are furnished with plaster bases so that when placed on a table, all models show this particular orientation. Fundamentally, this is to provide three working surfaces parallel to the three reference planes. This positioning of the models may be done as follows:

A glass plate (Fig. 3, G) is fastened to

the base frame of a Hooper duplicator (Fig. 3, F), parallel to the removable top piece, T, of the duplicator, by means of a low fusing impression compound. On the glass plate is placed a removable orienting frame of brass about 10 mm. high (Fig. 3, O). It has two parallel sides of equal length at right angles to the third side or frontpiece; the fourth side is open. The frame is constructed so that it fits between the three legs (Fig. 3, L) of the duplicator. When the frame is in position on the glass plate, it cannot be moved, and its sides are parallel to the symmetrical plane of the duplicator.

Two L-shaped pieces of aluminum alloy (Fig. 3, A) are attached to the upper frame of the duplicator so that they form a vertical slit in the symmetrical plane. Three pointed brass pins (Fig. 3, P_1, P_2 and P_3) inserted in the slit can be moved anywhere in this plane and fastened in any position by means of four machine screws (Fig 3, B). A movable screw (Fig. 3, S) with locknut is placed in the lateral part of the upper frame to help stabilize the model while it is being placed on its plaster base.

In using the modified Hooper duplicator the pins are slightly loosened and placed so that the pointed ends just touch the reference points of the model, which is placed temporarily on some modeling clay on the glass plate of the duplicator. The model must be adjusted so that the points of the middle and the posterior pins (Fig. 3, P_2 and P_3) are placed the same distance from the glass plate. This represents a horizontal line which is the intersection of the sagittal reference plane and the horizontal reference plane.

In general the model must be rotated about P_2 and P_3 until the anterior reference point lies in the plane of the three pins. Pin P_1 may then be adjusted to the anterior reference point. Thus the sagittal reference plane and a line which is common to it and the horizontal reference plane are positively alined with the reference planes of the Hooper duplicator.

The stabilizing screw (Fig. 3, S) is adjusted so that it just touches a point on the lateral part of the model; then all screws and bolts are tightened firmly. The top piece of the duplicator, the model and the clay are removed, and the model is soaked in water. A plaster of paris mix is placed in the orienting frame, and the model is placed on the plaster mix and adjusted so that the reference points again correspond with the ends of the brass pins on the replaced top piece of the duplicator. The stabilizing screw must touch the model as before.

When the pins and the screw are in position, it is possible to mount a plaster base on different models of the same mouth so that the orientation of all models is the same, provided the reference points correspond with the ends of the pins.

After the plaster base hardens the model and the orienting frame can be

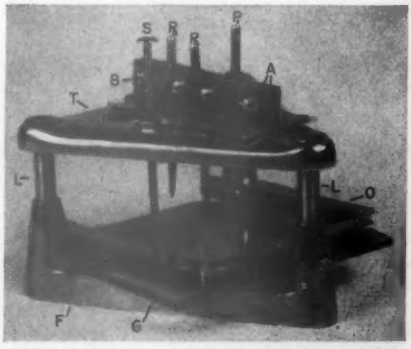

Fig. 3.—Modified Hooper duplicator. F, base frame of the duplicator; G, glass plate; O, removable orienting frame; L, legs of the duplicator; T, top piece or upper frame of the duplicator; A, L-shaped aluminum pieces forming a vertical slit; P_1, P_2 and P_3, pointed brass pins; B, bolts for fastening the pins in a desired position; S, adjustable stabilizing screw

removed from the duplicator. The model on the plaster base can slide back and forth in the frame through the open side (Fig. 4, left).

By this process the models are oriented so that a section through the model at right angles to its base and parallel to the front piece of the orienting frame will follow through a frontal plane, and a section at right angles to the base and parallel to the sides of the frame will follow through a sagittal plane parallel to the median plane of the model (Figs. 2 and 4, left). With this orientation either of the following methods for graphing the surface contour of the models may be used.

The Sectioning Method

In order to make a tracing through a determined point on the surface of the model along a frontal plane by this method, it is necessary to section the model in this plane through the determined point. The sectioning is done by means of a model trimmer. The model is placed in the orienting frame and slid out until the free ends of the sides of the frame lie in the plane of sectioning (Fig. 4, left). The base of the model then is placed on the table of the model trimmer (Fig. 4, right) and the model with the orienting frame in the previously mentioned position is moved forward against the flat grinding surface of the rotating stone of the model trimmer until the free ends of the orienting frame just begin to touch the stone.

The stone grinds at right angles to the table and the model base, and because the model has been moved forward in the frame parallel to the median plane, and the sides of the frame are of equal length, the vertical cross section of the model obtained by the grinding process will be a frontal plane. Similar sections can be made through any point on the median line of the model. Sagittal sections can be obtained by using a duplicate model oriented in a frame similar to that shown in Figure 4, left, but open on one side instead of on the end. If a guide bar is mounted on the table of the model trimmer perpendicular to the cutting surface of the wheel, sections may be cut through any of the sagittal or frontal planes without the use of an orienting frame.

The cut surface of the model is placed on graph paper and the contour of the

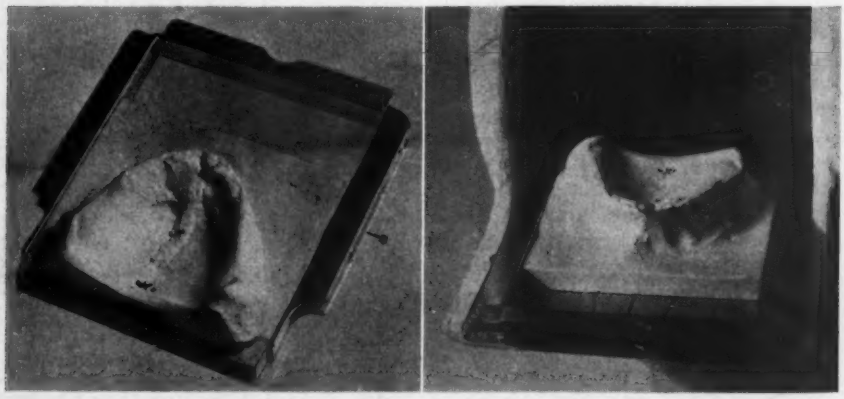

Fig. 4.—Left: Plaster model on model base partially slid out of the orienting frame. The ends of the sides of the frame are in line with the posterior reference point. Right: Model trimmer with model in orienting frame ready for grinding

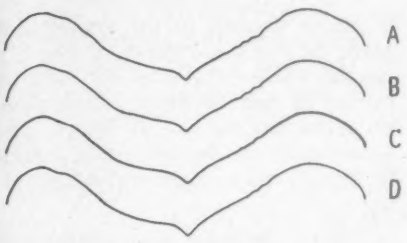

Fig. 5.—Four graphs of a frontal cross section through the same posterior reference point of a plaster model and its duplicate. A and C are graphs of the original model. B and D are graphs of the duplicate model. A and B are obtained by the sectioning method, C and D by the microscope method

cut is traced with a very sharp pencil.

The advantages of this method are that undercuts can be traced and drawings made in a simple, rapid manner. The disadvantage is that the model is destroyed and a duplicate is necessary in order to obtain tracings of vertical sections other than frontal. Tracings cannot be made of the parts cut away.

To check the sectioning method a plaster impression was made of an upper edentulous jaw using the procedures described. Plaster models were made in duplicate and both models were oriented on plaster bases in the modified Hooper duplicator. Frontal sections of the two models through the same reference point showed nearly identical tracings of the curved surface (Fig. 5, A and B).

The Microscope Method

A further check of the reproducibility of the sectioning method was made with the microscope method, which is somewhat similar to that used by Dolder.[1] The models were placed on a measuring microscope and measurements of their "mucosal" surfaces were obtained along the frontal plane in which the models later were sectioned. Curves plotted from the data obtained with the microscope method (Fig. 5, C and D) and the tracings obtained with the sectioning method (Fig. 5, A and B) coincide when superimposed.

The instrument employed in the microscope method is a measuring microscope (Fig. 6) the tube of which can be moved horizontally as well as vertically. A dial gage graduated in hundredths of a millimeter (Fig. 6, D) is attached to the microscope to measure the vertical travel of the tube. A special model table (Fig. 6, T, and Fig. 7) is placed on the measuring table (Fig. 6, M) of the microscope.

The model table can be moved forward or backward and from left to right by means of the moving devices (Fig. 6, S) of the measuring table. The right

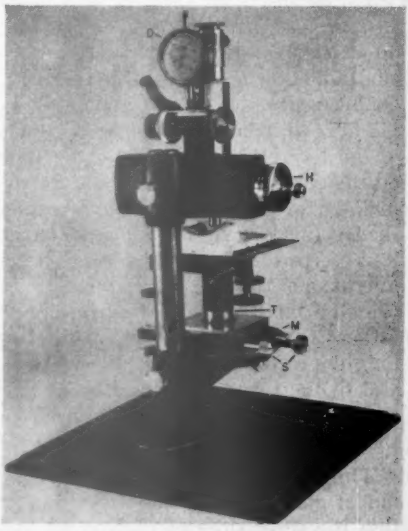

Fig. 6.—Modified measuring microscope. H, handle which moves the tube horizontally; D, dial gage which indicates the vertical position of the tube; M, measuring table which can be moved forward and backward from left to right by means of the screws; S, T, model table with model in position for measuring

1. Dolder, E., Physikalische Werkstoffprufungen an Zahnprothesen im Laboratorium und am Patienten. *Schweiz. Monatschr. Zahnheilkunde* 53:435 (May) 1943 and 53:535 (June) 1943.

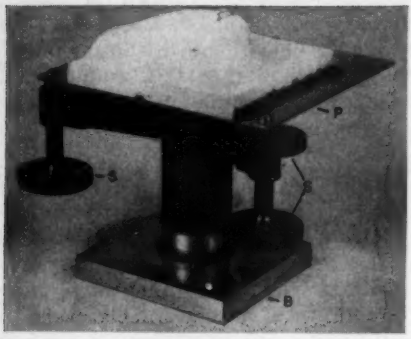

Fig. 7.—Model table with oriented model in position for measuring. B, base; P, model plate; S, leveling screws

and left movement of the model table parallels the horizontal movement of the tube and the forward and backward movement of the model table is at right angles thereto.

The model table (Fig. 7) consists of a square base (B) about 70 by 70 mm., on which an adjustable tripod is mounted upside down. A removable rectangular brass plate (Fig. 7, P) about 100 by 115mm. with holes matching the ends of the leveling screws (Fig. 7, S) rests on the tripod. This model plate can be inclined in any direction by adjusting the leveling screws. It is adjusted so that it is perpendicular to the axis of the microscope tube if measurements of oriented models are to be made. The sides of the model plate are parallel to the sides of the base of the model table and to the forward-backward and left-right movements of the model table in the microscope.

The oriented model is fastened to the model plate by means of sticky wax so that the three sides of its base formed by the orienting frame of the Hooper duplicator are parallel to the sides of the model plate (Fig. 7). When moved horizontally, the axis of the tube of the microscope will pass along a frontal plane, if the median line of the model is placed parallel to the symmetrical plane of the microscope, or along a sagittal plane if the model table is turned 90 degrees, which can be done easily because its base is square. The model table can be taken out, turned 90 degrees and replaced without adjusting anything else.

The microscope is equipped with an eyepiece containing cross hairs. The depth of focus of the optical system is approximately 0.05 mm.

Before obtaining the measurements, the model table with the model is moved back and forth with the cross hairs focused on the median line of the model until a marked point on the desired frontal cross section lies in the intersection of the cross hairs.

By focusing the microscope on the model surface and plotting the readings of the dial indicator for points spaced at one millimeter intervals across the frontal section, a contour of the mucosal surface may be obtained.

Several independent readings along different diameters of a circular metal model (Fig. 8) showed that it is possible to reproduce the plotting of such curves.

The advantage of this method is that the observations are made on the surface of the models, so that they do not have to be destroyed. The method, therefore, can be used also for plotting curves of the "mucosal" surface of dentures and impressions. The disadvantages are that it is impossible to obtain

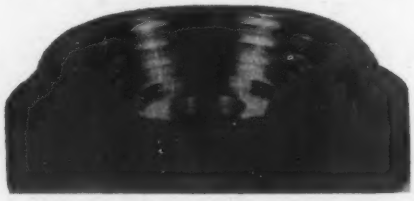

Fig. 8.—Metal model used for checking the reproducibility of the microscope measurements

the shape of undercuts and very steep surfaces because the focal distance is so short that the objective strikes the surface of the model before focus is obtained. Furthermore, the method is time consuming.

It would seem to be a disadvantage that the vertical reading may show a point of the model in focus within a distance of about 0.025 mm., but differences of this order of magnitude will not appear on a direct graph, where only fifths of a millimeter are estimated. The latter magnitude corresponds to an uncertainty of 0.2 per cent of the height of a curve like those shown in Figure 5. On a flatter curve the error will be more, on a steeper curve less. This, however, is of no practical consequence because it is difficult to produce duplicate impressions within a smaller tolerance, as is shown by preliminary experiments with different types of impression materials.

Summary

In order to compare the "mucosal" surface of various models of the same jaw, two methods of graphing such curved surfaces have been evolved.

Proper orientation of the models, necessary with either method, has been described.

Directions are given for a method of graphing the contour by sectioning and tracing the models. The other method described is based on the plotting of measurements taken along the desired lines on the surface of the models by the use of a microscope.

STUDIES IN THE DIETARIES OF CONTEMPORARY PRIMITIVE PEOPLES

Meyer Klatsky, D.D.S., New York

STUDIES in the dietaries of primitive people are of major importance to the dental investigator. For many years it has been realized that there is a close relation between the food that one eats and the state of health of the masticatory organs. There is still a great deal of disagreement as to the particular factors associated with diet which are responsible for the prevalence of dental disease and abnormality among civilized races. Anthropologists believe that the physical state of food and the manner in which it is masticated have an important influence on the growth and development of the jaws, muscles and teeth. They attribute the well developed masticatory apparatus of primitive peoples to the hard, bulky and resistant foods they consume. They also tend to believe that the high incidence of dental and oral pathologic conditions in civilized peoples is caused by the modern soft, sophisticated, nonstimulating diets. Greater attention should be given to this important factor, and more research must be encouraged.

It is unfortunate that most dental

Read at the annual meeting of the New York section of the International Association for Dental Research, January 30, 1947.

investigators are lured more by the dramatic aspects of nutrition than by the "prosaics" of food texture. In their desire to clothe their research in greater scientific respectability, many students confine their investigations to the chemistry of food, searching for a magic formula which would be a cure for all dental ills. It is true that living tissue must be nourished properly in order to remain healthy. It also has been established that a diet lacking certain key nutritional elements may give rise to pathologic changes in the human mouth. But it is erroneous to claim that dental abnormality and incidence of caries among civilized communities are caused mainly by nutritional deficiencies. It also is wrong to ascribe the large jaw bones and comparatively healthy teeth of the savage to superior nutrition.

In this discussion of the dietaries of primitive peoples, the object is to examine their diets from both the nutritional and the physical or textural aspects. Their diet will be evaluated first as a body fuel, then as a masticatory stimulant. Only by separating the two phases of the subject, and by examining each in its true perspective, is it possible to understand the role played by food in the health and development of the masticatory apparatus in the human being.

Constituents of Adequate Diet

Before discussing dietaries of primitive peoples, it might be well to consider what constitutes an adequate diet for a normal human being. From a purely nutritional viewpoint, an adequate diet is one which supplies the body with all the food elements required for the growth and repair of tissues and provides as well an adequate amount of heat and energy. The foodstuffs that supply these requirements are called nutrients. In brief, these can be listed as:

1. Proteins.—Nitrogenous substances that contribute to all body tissues.

2. Carbohydrates.—The starches and sugars that supply heat and energy to the body.

3. Fats.—The most concentrated form of energy.

4. Mineral salts. — Substances found in all body cells and fluids essential to metabolic process. They also are required for building of bones and teeth.

5. Vitamins. — Chemical substances whose main function is to catalyze the body processes.

6. Water.—Fundamental solvent and a constituent of all tissues.

Sherman[1] divides our familiar articles of food into six classes: (1) breadstuffs and other products of grain crops; (2) sugars and fats; (3) meats, including poultry, fish and shellfish, (4) fruits and vegetables; (5) milk, and (6) eggs. He evaluates the nutritive contribution of each of these foods, pointing out that there is no single type of food which is complete in itself. Milk comes closest, but even this food lacks iron, which is found in more abundance in eggs and in some vegetables. A diet cannot be considered complete unless it possesses all of the constituents required by the body. An adequate diet, therefore, is one that is abundant, diversified and well balanced.

It can be stated safely that the average American family can, and does, obtain a sufficient amount of the proper kinds of food to make up an adequate diet. A city like New York, for example, receives its oranges from Florida, its milk from the Catskills, its meat from Chicago, its bread from the wheat fields of the Dakotas and its coffee from beyond the equator. Under normal conditions every family can obtain a good selection

1. Sherman, H. C., *The Science of Nutrition*. New York: Columbia University Press, 1943, p. 92.

of all foodstuffs necessary for an adequate diet. The only hindrance to a sufficient and adequate diet is indigency, which is beyond the scope of our present discussion. But even this problem partly has been solved by the modern dietitians who point out that a well balanced diet can be built from inexpensive foods.

Primitive Dietaries

Contemporary primitives are not as fortunate as the peoples who live in a state of civilization. They cannot obtain their food at a market, nor do they come in contact with other peoples with whom they can barter. They depend entirely on the natural food supplies. The nomadic or wandering tribes depend mainly on the animals they hunt or trap and the wild plant life that they can dig or pick up in the area they occupy at the time. The more sedentary tribes necessarily depend on what they can get from the terrain. The natural resources generally are poor and limited, depending on the vagaries of the climate. These people have no great choice of foods. Their diet is not as abundant, varied, mixed or balanced as is ours. Even the more fortunate savages who occupy rich and luxurious lands seldom boast a diversified diet which can supply all the necessary nutrients.

Human beings are omnivorous animals. They can eat and digest foods derived from both animal and plant life. But the diet of most primitive peoples is of necessity monotonous. Some are chiefly carnivorous; the diets of others are herbivorous or lactivorous.

Davenport[2] describes the dietaries of primitive peoples, classifying them geographically. He points out that in Asia the people are mainly agricultural and herbivorous, while along the coast the prevailing group is piscivorous. In Africa, in the fertile upper Nile region (Sudan) and in the Sahara region, the natives are herbivorous or omnivorous. The inhabitants of the southern desert are carnivorous, those of the east side of the continent are prevailingly lactivorous and those of the west side herbivorous. In the central region carnivorous and herbivorous tribes are intermingled. In Australia and Oceania, with some exceptions, the inhabitants of the tropical and temperate zones are prevailingly herbivorous. Of the Americas, Davenport states that the inhabitants of the subpolar regions are carnivorous. Some groups of North American Indians are prevailingly carnivorous, others herbivorous. Among South American Indians, exclusively carnivorous and herbivorous tribes live not far apart. As elsewhere the nomadic Indians are hunters and chiefly carnivorous, whereas the sedentary agricultural Indians are chiefly vegetarians. A few Indian tribes such as the Chacobo Indians and the Paressi are pastoral and carnivorous.

Wissler[3] divides the New World into eight food areas: (1) North America, where the caribou, or American reindeer, was the main support of the aboriginal population; (2) the Pacific slope, which was the salmon area; (3) California and a portion of the interior, constituting the area of wild nuts and seeds; (4) the heart of the continent, the bison area; (5) eastern United States, the maize area; (6) an area extending from the Colorado River down through the Isthmus and Andean regions to the lower part of Chile, the region of intensive agriculture in which maize is also the leading food; (7) the interior of the South American continent, where small game and cultivated

2. Davenport, C. B., The Dietaries of Primitive Peoples. *Am. Anthrop.* 47:61 (January-March) 1945.

3. Wissler, Clark, *The American Indian.* Ed. 3. New York: Oxford University Press, 1938.

manioc are the important foods, and (8) the lower part of the southern continent, where the chief food animal was the guanaco.

Murdock[4] describes in great detail the life, culture and food habits of eighteen of the best known primitive peoples from various parts of the inhabited globe. An analysis shows that the dietaries of most of these savages are poor in quality, lacking in many essentials of adequate nutrition. Many of these unfortunate tribes are so desperate for food that they must resort to diets of such unsavory articles as mice, beetles, locusts, ants, termites, body lice, pounded ant-hill clay and bark of trees.

Dental Conditions Among Primitives

As the theories advanced by some researchers associate dental disease and abnormality with inadequate nutrition, an interest was aroused in making investigations of dental conditions among the poorly nourished primitive peoples. For this purpose, studies of skull collections at a museum were undertaken. Through the courtesy of H. L. Shapiro, curator of anthropology, access was given to the rich collections of skulls of many primitive races preserved at the American Museum of Natural History in New York. Four thousand skulls of forty-six different racial stocks, both primitive and civilized, were examined. It was found that the jaw bones of most of the primitive peoples were larger, sturdier and better developed and the teeth were in better occlusion than those of the civilized peoples. Statistical studies of caries incidence were made, and not a single carious tooth was found in the 337 skulls and 3,077 teeth of the British Columbia collection and the 255 skulls and 1,974 teeth of the Eskimo collection which were examined. In the other primitive groups, various degrees of dental decay were found, but the percentage was much smaller than among civilized people. This investigation was the subject of a previous report.[5] The logical conclusion is that faulty nutrition is not a determining factor in caries incidence or in abnormality of the masticatory organs.

The question naturally arose: What is the main contributing factor responsible for the well developed jaw bones and comparatively healthy teeth of the primitive? To find an answer the anthropologic studies were extended to the field of dental physiology. These studies revealed that the masticatory apparatus of primitive people are more active and function better than those of civilized people. There are some important features which distinguish the jaw bones and teeth of the savage from those of the civilized person. The primitive jaw bones are sturdier and more rugged than those of the average modern man. The contours of those parts of the bones which serve as origin and insertion of the muscles of mastication are better defined and more prominent, indicating that they were governed by large, strong masticatory muscles which functioned well during life. The teeth are well marked by attrition. Some time ago, the nature of attrition was described,[6] indicating that it is the yardstick by which function can be measured. A great deal of tooth attrition indicates maximum function of the masticatory apparatus by chewing rough, resisting and stimulating food.

Primitive Preparation of Food

The texture of food plays an important part in the physiologic processes of the human body. Even the nutritionists

4. Murdock, G. P., *Our Primitive Contemporaries.* New York: Macmillan Company, 1934.

5. Klatsky, Meyer, and Klatell, J. S., Anthropological Studies in Dental Caries. *J.D. Res.* 22:267 (August) 1943.

6. Klatsky, Meyer, Dental Attrition. *J.A.D.A.* 26:73 (January) 1939.

realize this. Sherman[7] states: "The texture of bread tends to give good physical properties to the food mass as a whole in the digestive tract. The mild acidity of most fruits and the texture of the flesh fiber of many of them combine to make fruit an especially pleasant and wholesome food with which to end a meal, because these properties leave the teeth and gums in a clean, fresh condition, and also aid in the digestion of the meal as a whole." In his textbook, Proudfit[8] attaches great importance to "cellulose—a carbohydrate not available for fuel but an excellent regulator of peristalsis (good elimination)." He classifies it among the nutrients which regulate the body processes.

Anthropologists have contributed greatly to the knowledge of the relation of food texture to the health and development of the human masticatory apparatus. In describing the sturdy and overdeveloped jaws of the natives of Kodiak Island, Alaska, Hrdlicka[9] stated that the maxillary and mandibular hyperostosis was due to functional stresses brought about by the tough, fibrous food that they ate. He quoted from Lisiansky and Holmberg who described the crude manner in which these islanders prepared and consumed their food, the texture of which served as a masticatory stimulant.

The tough, fibrous flesh of animals, whether eaten raw, dried, roasted or boiled, tends to stimulate the masticatory organs to great activity, which in turn contributes to their healthy growth and good development. The massive jaws and healthy teeth of the Eskimos generally are attributed to the texture of their carnivorous diet and the manner in which they consume it. The Eskimos are voracious eaters. A hungry Eskimo can devour 8 to 10 pounds of meat in one meal. In eating, they stuff a long strip of flesh as far as possible into the mouth and cut it off at the lips with a knife. Birds are eaten raw—bones, feathers, intestines and everything except the bills and feet.

Primitives make little use of eating tools such as knives, spoons or forks. They use their hands for introducing the food into the mouth and then allow their powerful jaws and teeth to exercise on the food. The cult of some savages requires that when the first catch of a new snare is eaten, the meat must be bitten off with the teeth or torn off without the help of a knife.

Although a carnivorous diet takes first place as a masticatory stimulant, the herbivorous and omnivorous dietaries of most primitive people are not far behind in this respect, mainly because of the manner in which the foods are prepared and eaten by the savage. The staple food of many American Indian tribes was maize, or Indian corn. The corn was eaten either raw or prepared in one of many different ways. Kinietz[10] described some of these food preparations.

The Huron Indians bake bread of corn and red beans, which they pound in wooden mortars and reduce to flour. Sometimes they add blueberries or dried raspberries; at other times they add pieces of deer fat. Afterwards, steeping the mixture in warm water, they make loaves of it, shaped like cakes or tarts, which they bake in the ashes and when cooked, wash them. They eat *sagamiti*, or corn into which is put fresh or dried meat, fish or fruit. *Migan* is made from Indian corn without removing the bran; it is boiled and put into the same pot with a little fresh or dried fish. When

7. Sherman, H. C., *The Science of Nutrition*. New York: Columbia University Press, 1943, p. 100.
8. Proudfit, F. T., *Nutrition and Diet Therapy: A Textbook of Dietetics*. Ed. 8. New York: Macmillan Company, 1942, p. 5.
9. Hrdlicka, Ales, *The Anthropology of Kodiak Island*. Philadelphia: The Wistar Institute of Anatomy and Biology, 1944, pp. 46, 405.
10. Kinietz, W. V., *The Indians of the Western Great Lakes 1615-1760*. Ann Arbor: University of Michigan Press, 1940.

it is all cooked, the fish is crushed very fine, regardless of the bones, scales or entrails.

Andataroni is bread made of corn. The grain is boiled, then wiped and dried a little, crushed, water added and kneaded. It is cooked under hot ashes, wrapped in leaves of corn, then washed without the leaves. Sometimes cooked beans are added to the dough without crushing them, or strawberries, wild mulberries, blueberries, raspberries or other small fruits, dry or green. *Coinkia* is corn bread made and arranged as two balls joined together, wrapped in corn leaves and then boiled in water.

For other corn preparations, a quantity of corn is gathered before it is at all dry and ripe and the women and children detach the grains with their teeth and spit them into large bowls. They finish pounding it in a large mortar, then wrap it in leaves to cook under ashes.

A special delicacy served at feasts was *leindahy*, or stinking corn. The women put a large quantity of corn in stinking water for a few months, then eat it.

Bolton[11] described some of the food preparations of the native Indians of New York. They made a bread called *flat-jack*, about 1 inch thick, by pounding corn into a coarse flour, then kneading it into dough. The bread was made more palatable by mixing beans or chestnuts and sometimes dried meat with the meal.

A *poni* is a flat cake made of corn which was ground or pounded to a coarse flour, mixed into a dough with water and baked among hot ashes. *Sapsis* is a kind of porridge, consisting of a thin corn mixture in which the housewife placed pieces of meat or of any edible thing that happened to be present, such as a bird, a turtle, a frog or even a snake.

The Iroquois Indians of northern New York used to take only one regular cooked meal a day. The rest of the day they helped themselves to prepared food and chewed spruce gum, the bark of the basswood and slippery elm and a spongy tissue obtained from the teats of female deer.

The Dahomeans of West Africa have their own peculiar dishes: *Akasan* is made by soaking corn meal in water until it begins to ferment; then it is boiled to the consistency of porridge, allowed to harden, molded into balls the size of an orange and wrapped in banana leaves. *Kalalu* is another of their native dishes, which consists of smoked fish cooked in palm oil and highly seasoned with peppers and other herbs.

Richards[12] made an intensive study of the Bemba tribe of northern Rhodesia. He found that their diet consists mainly of two preparations, namely *ubwali* and *umunani*. *Ubwali* is a porridge made of millet, which is their staple food. The coarsely ground millet flour is poured into boiling water, stirred until the mixture is stiff and then kneaded and patted with a strong wooden blade and formed into round lumps. It is served in baskets and the diners tear off pieces of the warm, brown lumps, roll them into balls and dip them in *umunani*. This is a relish, a stew consisting of meat, fish, caterpillars, locusts, ants, vegetables, mushrooms and so forth.

An example of a liquid preparation of some of the primitives is the *kava* of the Samoans. The girls cram pieces of dried root and a variety of pepper into their mouths, chew them thoroughly and spit out the juice and pulp into a special wooden bowl. The mass is then stirred, mixed with water and strained.

These examples of the rough, resistant nature of the diets consumed by

11. Bolton, R. P., *Indian Life of Long Ago in the City of New York*. New York: J. Graham (limited edition), 1934.

12. Richards, A. I., *Land, Labour and Diet in Northern Rhodesia: An Economic Study of the Bemba Tribe*. London, New York, Toronto: Oxford University Press, 1939.

primitive peoples indicate the kind of diet that tends to stimulate masticatory function. Vigorous activity of the masticatory organs from early childhood contributes greatly to the development of large and sturdy jaw bones and teeth in proper occlusion. Bulky, fibrous food, when activated by the forces of vigorous mastication, has a cleansing and scouring effect on the teeth and gingivae, keeping them in a hygienic condition, thus preventing caries and pyorrhea.

Comments

Studies show that, from a purely nutritional viewpoint, the dietaries of most primitive people are poor, monotonous and inadequate. It is erroneous to ascribe the well developed jaw bones and muscles and the healthy teeth of the primitives to good nutrition. They enjoy these benefits in spite of inadequate nutrition. The texture of food consumed by primitives is rough, bulky and resistant — qualities which tend to stimulate the masticatory apparatus to great activity and proper function. Good function contributes to good growth and healthy development of these organs.

The underdeveloped jaws and the poorly alined and carious teeth of modern people are products of civilization. These conditions are not caused by faulty nutrition, as civilized people are better nourished than most of the primitives. The refined texture of the food we eat and the sophisticated methods of its preparation and consumption are the most important contributing factors in dental degeneration.—*401 Broadway.*

SIMPLE TECHNIC FOR ACCURATE CASTINGS: NEW AND ORIGINAL METHOD OF VACUUM INVESTING

George M. Hollenback, D.D.S., M.S.D., Los Angeles

Viewed from a technical standpoint the making of cast inlays is and always will be a rather involved and difficult process. After forty years of use, we now have a fairly complete understanding of all the factors involved in the procedure, and during this period dental literature on this subject has been replete.

Some time ago in writing a paper on the cast gold inlay, I was surprised to find that in two years approximately four hundred papers on the topic had been prepared. This was a period during which the truly scientific aspects of the problem were appreciated by only a very few individuals. Therefore, it can logically be assumed that most of these presentations did not possess any real merit, the problem being attacked usually on a fallacious and empiric basis: fallacious in that certain nonessential and even mistaken concepts of the factors involved were accentuated with no proper concept of those factors which are essential; empiric in that the factors were little understood and had not been scientifically evaluated.

Five Steps

The steps involved in producing a cast dental restoration are: (1) prepar-

ing the cavity, (2) making the wax pattern, (3) making the mold, (4) processing the mold, (5) making the casting. It might reasonably be assumed that a process involving only five different procedures would be comparatively easy of execution. However, in spite of the fact that many have devoted their best efforts for forty years, it is only during the last twenty that a fair degree of success has been achieved, and only during approximately the last decade that the art of dental casting has been perfected to a point that approaches precision. In this instance the term precision is not used in a qualified manner but is meant to convey the impression that it is now possible to cast metal by purely dental methods to a degree of accuracy which compares favorably with precision results secured by forming metals by other mechanical procedures.

That phase of the art of dental casting which involves the accurate reproduction of a wax pattern definitely has been reduced to a point of simplicity and accuracy whereby anyone possessing a fair degree of intelligence and manual dexterity easily can produce a precision product. For instance, in one of our well equipped dental schools, the art of casting is taught during the first semester of the freshman year. A few years ago I was privileged to attend a clinic given by a group of students in this school and was surprised to see castings of great beauty and accuracy. In my conversation with them I found that all the students had a very good concept of the scientific and practical aspects of the problem. It can be stated without fear of contradiction that it is now possible to reproduce any wax pattern, regardless of type, with a high degree of accuracy. Even a comparatively inexpe-

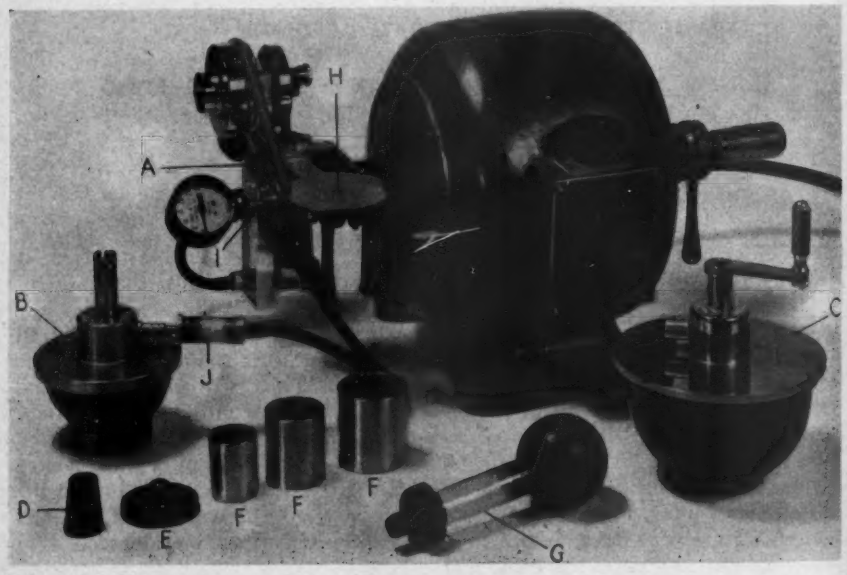

Fig. 1.—Armamentarium for the technic described. A, vacuum pump attached to a standard laboratory lathe; B, small vacuum mixer; C, large vacuum mixer; D, rubber plug; E, crucible former; F, casting rings; G, wax eliminator; H, vibrating table attached to vacuum pump; I, drive member attached to lathe shaft; J, filter trap to keep foreign matter from vacuum pump

rienced person can do this by carefully following a few simple instructions.

There does not exist today a single valid reason why every dental student should not be taught the art of precision casting or why every progressive dental practitioner should not give his clientele the benefit of this art.

The rest of this article will be devoted to an explanation of the technical aspects of the problem. Brief but adequate instructions will be given for a simple casting technic. There is a definite scientific reason for each step of this procedure, and the technic must be followed accurately to the last detail. There should be little temptation to attempt changes and short cuts, as the technic itself is very simple and the time consumed is short—approximately an hour and five minutes from wax pattern to finished casting.

The five steps involved in making a cast restoration have been enumerated, and the armamentarium is shown in Figure 1. Each step is of equal importance, and if any one is neglected, failure is inevitable. The five steps will be considered, but only the last three will be presented in detail.

Cavity Preparation

Cavities for the reception of cast restorations must be prepared accurately. No matter how well the rest of the technic may be carried out, a good inlay cannot possibly be made for a badly prepared cavity.

Wax Pattern

The physical properties of wax must be understood, together with the technical procedures involved in making the pattern. Prime essentials are the confinement of the wax in a suitable matrix band, careful introduction into the cavity and maintenance of pressure during slow cooling.

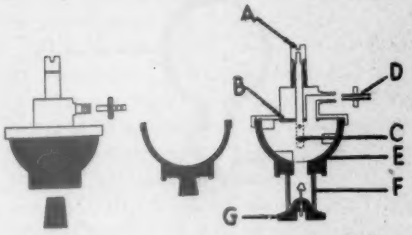

Fig. 2.—Left: Side view of vacuum mixer. Center: Cross section of bowl with rubber plug in position. Right: Cross section of vacuum mixer with casting ring and crucible former in position. A, drive coupling; B, cover; C, agitator; D, friction coupling for vacuum line; E, rubber bowl; F, casting ring with asbestos liner; G, crucible former with sprue former and pattern

Making of the Mold

This step with its equipment will be presented in considerable detail (Fig. 2), and the careful observance of this detail is necessary. The dimension of the finished casting is determined largely by the procedures in this step. Castings of correct dimensions, oversize or undersize, can be produced at will.

A sprue former as large as the pattern will accommodate should be used. It will vary from 18 to 12 gage. The sprue former should be carefully melted into the pattern, so that it will not become detached during investing. The sprue former is then inserted in the rubber crucible former. A collar on the shank of the sprue former serves to make a hermetic seal between it and the crucible former.

Before investing the pattern must be cleansed thoroughly. If the pattern has been made by the direct method, it should be cleansed with a pledget of cotton saturated with 3 per cent hydrogen peroxide. This will remove all organic debris. If the pattern has been made by the indirect method, it should be cleansed with a surface tension destroying agent, such as tincture of green soap or a stock solution prepared for

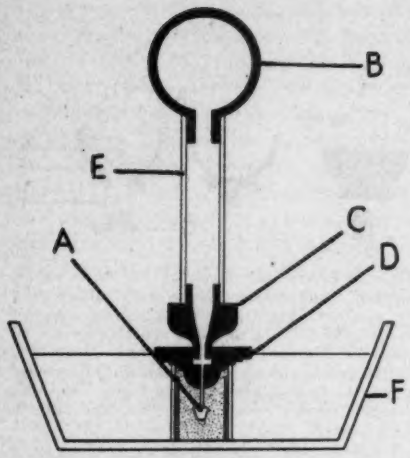

Fig. 3.—Wax eliminator attached to crucible former. Sprue former has been removed, leaving an open channel to pattern, A. Rubber bulb, B, is collapsed and soft rubber tip, C, is inserted in recess of crucible former, D. When pressure is removed from rubber bulb a partial vacuum will be formed in glass barrel, E. Assembly is placed in receptacle of boiling water, F, and softened wax is drawn into barrel of eliminator

this purpose. After the pattern has been cleansed, it must be dried thoroughly.

Casting rings made of stainless steel with the ends accurately finished are available in three different sizes. The small ring is recommended for all small restorations, inlays and crowns. A soft asbestos liner 1/32 inch in thickness and 1/8 inch shorter than the ring is inserted in the ring dry and, when in position, saturated with water. It is placed flush with the upper or open end of the ring. This will permit the investment to contact the lower portion of the ring, thus making a seal. The function of the asbestos liner is to permit free lateral expansion of the mold which otherwise would be prevented by the ring's unyielding wall. The ring now is placed on the crucible former, which has several steps so as to fit each size ring.

The hole in the bottom of the bowl of the mixer is closed with a rubber plug. The water for the mix is measured accurately with a pipette and placed in the bowl. The investment is weighed accurately with a metric balance. The powder-water ratio used will control the size of the casting. For instance, with a certain investment a powder-water ratio of 3.375 to 1 will result in a casting true to dimension. If this ratio is changed to 3.25 to 1 the casting will be slightly undersize; if it is changed to 3.5 to 1 the casting will be slightly oversize. Under certain conditions it might seem desirable to produce castings slightly undersize, but there would seem to be no good reason for making them oversize. No change of powder-water ratio is necessary for various patterns.

The investment powder is placed in the bowl and puddled with the spatula, the cover of the mixer is placed on the bowl, the rubber plug is removed, the mixer is placed on the casting ring and the intake tube of the vacuum pump is inserted in its receptacle. Then the vacuum pump is turned on, exhausting the air from the bowl and casting ring. The whole assembly now will be held together firmly by atmospheric pressure and may be handled as a unit. The shaft of the mixer is engaged with the drive member, which is held in the chuck of the laboratory lathe, the lathe is turned on at low speed and the investment is mixed from ten to fifteen seconds. Mixing under vacuum removes all air from the investment, as any air bells present will be broken and eliminated.

The mixer is disengaged from the drive member and placed in an upright position with the crucible former resting on the vibrator table. Vibration is continued for 30 seconds. During this time the investment will flow smoothly and evenly around the pattern and completely fill the ring. The vacuum tube is disconnected from the top of the mixer, the ring is grasped and held firmly in position on the crucible former and the bowl is removed carefully from

the ring. A small metal or glass plate should be placed on top of the ring and all excess investment washed away under the cold water tap.

Enough investment can be mixed at one time for filling three small rings. When this is done, after the first ring is filled, the mixer is placed on the next ring, the vacuum redrawn (no further mixing being necessary) and the investment is completed as described.

Processing the Mold

The investment is processed for the purpose of expanding it to compensate for the shrinkage of the metal used in casting, to remove the wax pattern, to heat it so as to drive off free moisture and the water of crystallization and to bring it to the proper temperature for the reception of the molten metal. With this technic the greater part of the compensation is secured by the use of a modification of the Scheu method,[1-3] which utilizes hygroscopic expansion of the investment for this purpose.

This is done as follows. As soon as the investment is completed, the ring is placed in a water bath at 100 F. The water must be deep enough to submerge the ring completely. The setting of the investment in a supersaturated condition will show much more than the normal setting expansion. Expansion, suitable for the various gold alloys, can be secured easily. Any desired degree of expansion can be obtained by merely changing the powder-water ratio. The ring is left in the water bath for a minimum of thirty minutes. If it is allowed to stay longer no harm will be done, as any expansion which occurs after that time will be of no consequence.

When the ring is removed from the water bath, a meniscus of set investment will protrude from its open end. This is trimmed flush with a knife. The sprue former is now removed carefully so as not to loosen the crucible former (Fig. 3). The bulb of the wax eliminator is collapsed and the soft rubber tip pressed into the recess of the crucible former. The ring is placed in a recep-

1. Scheu, C. H., A New Precision Casting Technic. *J.A.D.A.* 19:630 (April) 1932.
2. Scheu, C. H., Precision Casting Utilizing the Hygroscopic Action of Plaster in Investment in Making Expanded Molds. *J.A.D.A.* 20: 1205 (July) 1933.
3. Scheu, C. H., Controlled Hygroscopic Expansion of Investment to Compensate for Shrinkage in Inlay Casting. *J.A.D.A.* 22:452 (March) 1935.

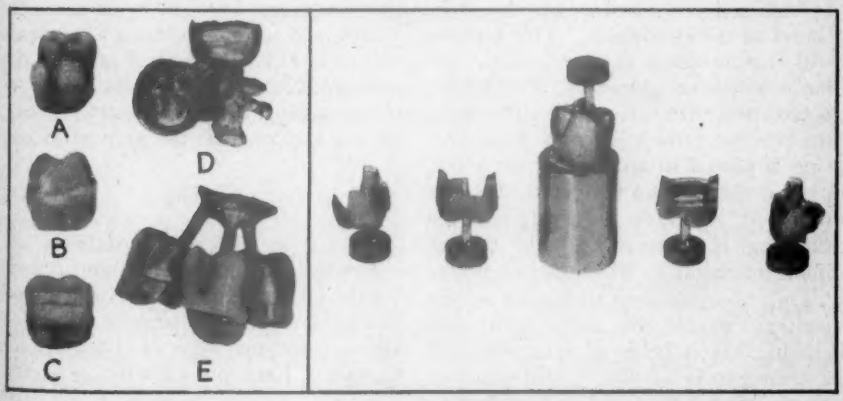

Fig. 4—Left: Three types of preparations on large porcelain teeth. A, complex M. O. D.; B, full crown; C, three quarter crown; D, casting for each preparation made by investing the patterns in a single ring and casting them together; E, casting in position on porcelain teeth. All fit accurately. Right: Five castings made for large porcelain tooth with complicated preparation. All fit equally well

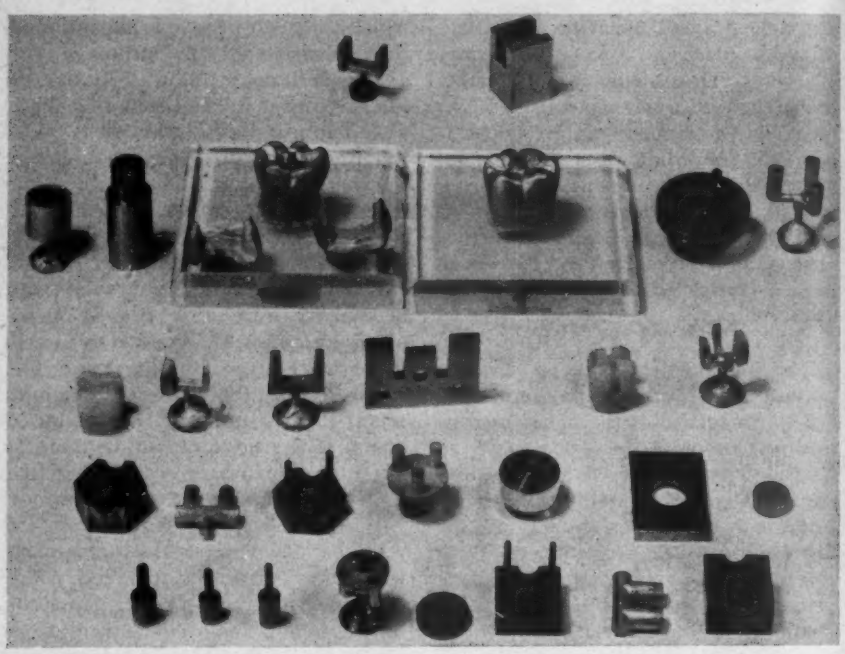

Fig. 5.—Wide variety of castings made to fit preparations in porcelain teeth and various types of metal dies. These castings vary in weight from 2 to 15 dwt. Regardless of size or complication no change was made in the technic for these castings

tacle of boiling water, deep enough to submerge it completely. The wax will be softened and drawn into the glass barrel of the eliminator. This usually will require about three minutes. No harm will result, however, if this time is exceeded. After the wax is eliminated the crucible former is removed and the ring is placed in an oven or on a hot plate preheated to a temperature of 800 to 850 F. At the end of thirty minutes the ring is removed and the casting made immediately, while the ring is hot.

Only an investment with a high silica content should be used with this technic. It is believed generally that a temperature of 800 F. will produce approximately 0.2 to 0.3 of 1 per cent of thermal expansion.[4] Since this occurs in a comparatively flat spot of the expansion curve, even if the casting is made slightly above or below this temperature, the change in the dimensions of the casting will be of little moment. In a high heat technic utilizing a temperature of 1200 F., any cooling of the mold will produce a decided effect on the fit of the casting, as the curve at this temperature approaches the perpendicular.

Casting

Two types of casting machines are in general use, air pressure and centrifugal. Of late years the centrifugal type has become the more popular. I prefer the air pressure type of machine, although I have no scientific basis for

4. Volland, R. H., and Paffenbarger, G. C., Cast Gold Inlay Technic as Worked Out in the Cooperative Research at the National Bureau of Standards and Applied by a Group of Practicing Dentists. *J.A.D.A.* 19:185 (February) 1932.

assuming that it is superior to the centrifugal.

Two types of blow pipes are in general use, gas-air and gas-oxygen. Either is satisfactory, although when the gas-oxygen flame is used care must be taken not to overheat the metal. Overheating will tend to produce a rough surface on the casting and may damage seriously the complex gold alloys in use today. In casting, the metal should be heated, using a reducing flame, only to the point where it becomes sufficiently fluid to fill the mold completely. If an air pressure machine is used the amount of pressure is not critical, 20 to 40 pounds being satisfactory.

Summary and Conclusion

A casting technic has been described which will reproduce precisely and consistently any wax pattern regardless of type or complication (Figs. 4 and 5). No change of technic is necessary for varying types of castings. By slightly changing the powder-water ratio, metals and their alloys of different coefficients of expansion can be cast to dimension. This technic is so simple that a comparatively unskilled person can produce precision results. It will be understood that this applies only to the accurate reproduction of the wax pattern in metal. The preparation of cavities and making of accurate wax patterns are both difficult procedures and require a high degree of knowledge and technical skill.

Five steps are involved in making cast restorations. Each one must be carefully carried out to secure a precision result.—*2206 North Third Street.*

ORAL USE OF ABSORBABLE GELATIN SPONGE IN THE PREVENTION AND TREATMENT OF POSTOPERATIVE HEMORRHAGE

C. D. Gwinn, D.D.S.; D. H. Grimm, D.D.S., M.S., and E. W. Ferber, D.D.S., M.S., San Francisco

THE FOLLOWING report is the last of a series of three dealing with the clinical use of three materials in the control of hemorrhage associated with tooth extraction. In the first and second reports, a series of cases was described in which fibrin foam and thrombin[1] and absorbable oxidized cellulose,[2] respectively, were used.

This report will deal with the use, without thrombin, of an absorbable gelatin sponge for the same purposes and in the same manner as described in the first two articles. The material used in this series was supplied to us

From the Division of Dental Surgery, University of California.

1. Gwinn, C. D., Grimm, D. H., and Ferber, E. W., Oral Use of Fibrin Foam and Thrombin. *J.A.D.A.* 35:7 (July 1) 1947.

2. Gwinn, C. D.; Grimm, D. H., and Ferber, E. W., The Oral Use of Absorbable Oxidized Cellulose in the Prevention and Treatment of Postoperative Hemorrhage. *J.A.D.A.* 36:155 (February) 1948.

for experimental purposes by the Upjohn Company under the name Gelfoam. For purposes of convenience the name Gelfoam will be used in this paper to designate this absorbable gelatin sponge.

Properties of Gelfoam

Gelfoam was produced first by Correll and Wise[3] who were searching for a substitute for fibrin foam. It was felt that with the termination of hostilities there would be a decrease in blood donations and that some other material should be found to take the place of fibrin foam. Gelfoam was designed to be used with bovine thrombin which could be obtained readily.

Gelfoam as supplied is a water-insoluble gelatin base sponge obtained by foaming a specially prepared gelatin solution which is then air dried in Monel metal molds and sterilized.[3] Its density is 9 mg. per cubic centimeter and it will absorb forty-five times its weight of blood.[4] It is tough and may be cut into variously shaped pieces without crumbling. It is digested in a standard pepsin solution in about thirty minutes, the same length of time required for the digestion of fibrin foam. It is well tolerated by the tissues. Correll and Wise, in absorption studies in rats using both Gelfoam and fibrin foam, could find no Gelfoam after thirty days although traces of fibrin foam remained after fifty days.

Inasmuch as we had used oxidized cellulose with good results in a previous study without thrombin,[2] and as Jenkins and Clark[5] and Berg[6] had used Gelfoam without thrombin, it was decided that we would use Gelfoam in this series in the same way. This was done for two reasons. First, it was felt that the simpler the procedure the more adaptable the method might be for the general practitioner. The use of thrombin entails the opening of a new unit for each treatment and the dissolving of the dried thrombin in sterile normal saline solution. Secondly, when wetted with thrombin solution the sponge becomes very soft, and it is difficult to hold it in place in a tooth socket without filling the socket completely. In most of our cases the material was used somewhat as a stopper in the opening of the socket and was intended to cover a blood clot filling the remainder of the socket. When worked dry the sponge could be cut into the desired shape, placed in the opening of the socket and sutured in place before becoming thoroughly soaked with blood.

Gelfoam as supplied comes in a glass jar and is sterile. If opened under sterile conditions a portion of the sponge may be clipped off with sterile scissors and the jar closed. In this way a jar may be used several times.

Method

The patients are divided into four groups, three as in the previous series,[1,2] with a fourth added: (1) those with a history of prolonged hemorrhage after extraction, (2) those in which persistent bleeding from the wound occurred during the course of the operation, (3) those having postoperative hemorrhage and (4) those in which antrum penetration occurred during the extraction of upper molars.

The technic of using Gelfoam was the same as that employed with fibrin foam and thrombin and with Oxycel.

Group 1.—If the patient had a history of prolonged bleeding following extraction or if the history was such as to indicate a tendency toward postoperative

3. Correll, J. T., and Wise, E. C., Certain Properties of a New Absorbable Sponge. *Proc. Soc. Exper. Biol. & Med.* 58:233 (March) 1945.
4. Light, R. U., Hemostasis in Neurosurgery. *J. Neurosurgery* 2:414 (September) 1945.
5. Jenkins, H. P., and Clark, J. S., Gelatin Sponge, a New Hemostatic Substance. (Studies on Absorbability). *Arch. Surg.* 51:253 (November-December) 1945.
6. Berg, L., Gelfoam in Dentistry. *D. Items Interest* 69:204 (March) 1947.

hemorrhage, Gelfoam was used as follows: The tooth was extracted, the margins of the socket were smoothed and sulfathiazole powder was dusted around the margins. A piece of Gelfoam was shaped to fit the opening of the socket. This was placed in the opening but was not forced down deeply into the socket. One or two plain catgut sutures, depending on the size of the wound, were placed buccolingually to hold the Gelfoam in place and support the tissue. A gauze sponge impregnated with petrolatum was placed over the socket and the patient was instructed to exert gentle pressure for from two to three minutes.

Group 2.—In cases where persistent bleeding occurred during the operation, Gelfoam was applied directly over the bleeding point and pressure was applied for one to two minutes. After this interval the pressure was released, the margins of the socket were dusted with sulfathiazole powder and the soft tissues were sutured. The Gelfoam was left in place. A gauze sponge impregnated with petrolatum was placed over the socket and the patient was instructed to exert gentle pressure on it for two or three minutes. If the bleeding occurred from the inferior alveolar canal, a fairly large piece of Gelfoam was placed over the exposed portion of the canal and gentle pressure was maintained for several minutes by means of a moistened pledget of cotton held by the cotton pliers. After this the wound was treated routinely. If a gauze dressing was to be used it was put in place and the soft tissue was sutured as necessary.

If the bleeding occurred from the vicinity of the alveolar bone, it was treated by placing the Gelfoam over the bleeding point and maintaining firm pressure on it for several minutes by means of a moistened cotton or gauze sponge. Because of the character of the material it is not possible to pack Gelfoam tightly into the opening in the bone as may be done with Oxycel.

If bleeding occurred from the margins of the socket after the extraction, Gelfoam was placed in the opening and sutured in place as in group 1. Pressure was maintained over the socket for several minutes by means of a gauze sponge impregnated with petrolatum.

Group 3.—Postoperative hemorrhage was treated in two ways. A piece of Gelfoam was placed over and partly in the opening of the socket, and pressure was maintained for as long as sixty minutes by means of a sponge impregnated with petrolatum. If bleeding continued and seemed to be coming from the deeper parts of the wound, the area was anesthetized, the socket was sponged and filled with Gelfoam and buccolingual sutures were placed. After this treatment pressure was maintained over the socket for about ten minutes by means of the gauze sponge impregnated with petrolatum.

Results

Group 1.—In the group in which Gelfoam was used to prevent hemorrhage in patients having a history of prolonged bleeding, ten operations were performed on 9 patients. Three of the group were diabetics, 1 with a coagulation time of nine minutes, 1 with a bleeding time of five and a half minutes, and 1 with a blood pressure of over 240.

In treating the man with the coagulation time of nine minutes, bovine thrombin was used with the Gelfoam. No treatment had ever brought his clotting time within normal limits. He was given vitamin K by his physician before the extraction. Two adjacent lower molars were extracted, and bleeding was profuse during the operation. The bleeding stopped on application of Gelfoam soaked in thrombin. The sockets were sutured, the material was held in

place and pressure was applied by means of a gauze sponge impregnated with petrolatum. There was no bleeding on the next day. Forty-eight hours after the operation the patient reported some oozing that stopped after a few minutes. No treatment was necessary for this.

Another patient, after extraction of a lower third molar, experienced bleeding for the rest of the day and part of the night. Such hemorrhage had occurred several times previously, after the extraction of teeth, and he did not notify us because he said that he had expected it. None of the other patients had any postoperative hemorrhage.

Group 2.—Gelfoam was used to stop excessive bleeding at the time of operation in 9 patients. In 3 cases the bleeding was a result of injury to the inferior alveolar vessels during the removal of impacted third molars. The hemorrhage was controlled in each case by placing a piece of Gelfoam over the exposed portion of the canal and holding it in place for several minutes by means of a moistened pledget of cotton held in the cotton pliers. The sockets were dressed in the usual way, and there was no recurrence of the bleeding.

One patient was suffering from lymphatic leukemia. Three teeth were extracted and Gelfoam was placed in the opening of each socket and sutured in place.

In 1 patient bleeding from the bone was encountered during the removal of a lower cuspid root. This was stopped by the application of Gelfoam combined with pressure over the bleeding point.

In 1 patient persistent bleeding occurred from the soft tissue following the removal of an impacted lower third molar. This was controlled by filling the wound up to the margins with Gelfoam. No other packing was used. The bleeding stopped and did not recur.

In the other cases profuse bleeding from the sockets followed the routine extraction of teeth. This was controlled by placing Gelfoam in the sockets and suturing the soft tissues buccolingually.

Group 3.—Gelfoam was used to stop postoperative hemorrhage in 9 cases. The bleeding began from five hours to four days after the extractions. In 7 cases the hemorrhage was controlled by placing Gelfoam in the sockets and applying pressure by means of a gauze sponge impregnated with petrolatum for twenty to sixty minutes. In 2 cases the bleeding could not be controlled by this means. In these instances the area was anesthetized and the wounds were freed of blood, packed with Gelfoam and sutured buccolingually. Pressure was applied as before. The bleeding stopped in each case and did not recur.

Group 4.—There were 3 cases in which penetration of the floor of the maxillary sinus occurred during the extraction of upper molars. In 2 of them an opening through the lingual root socket to the maxillary sinus was noticed at the time of extraction of upper first molars. The lingual root sockets were lightly closed with Gelfoam, and the soft tissues were sutured. The blood clot remained intact, normal healing occurred and there was no tendency for a permanent oral antral opening to be established. In the third case a lingual root tip of an upper first molar had been forced into the maxillary sinus a few hours earlier. An opening into the floor of the sinus was made between the buccal and lingual roots, the root tip was removed and the opening was covered with a piece of Gelfoam. The soft tissues were sutured buccolingually. The socket healed and the opening remained closed.

Comment

Jenkins and Clark,[5] Berg[6] and Guralnick,[7] all found that Gelfoam possessed

7. Guralnick, W. C., Absorbable Gelatin Sponge and Thrombin in Oral Surgery. *Am. J. Orthodont. & Oral Surg.* 32:Sec. Oral Surg., 792 (December) 1946.

some hemostatic properties of its own. Whether this is due to the greatly increased surface area offered to the blood in the interstices of the sponge, or whether it is due in part to some slight pressure exerted by the swelling of the spongy mass when filled with blood, is not clear. Our observations lead us to believe that although the hemostatic effect of the dry Gelfoam is sufficient in most cases to prevent hemorrhage or to arrest hemorrhage occurring immediately after the extraction of a tooth, when persistent bleeding occurs as in intermediary or secondary hemorrhage, the Gelfoam should be soaked in thrombin solution before being used. In cases of this kind, not reported here, our results with Gelfoam and bovine thrombin have been equal to those obtained by the use of fibrin foam and human thrombin and reported in a previous paper.[1]

As far as could be determined by clinical observations, healing was not interfered with when Gelfoam was used to prevent hemorrhage or to stop hemorrhage which occurred immediately after extraction.

Several dry or septic sockets occurred after the arrest of secondary hemorrhage. We are unable to state whether the introduction of the Gelfoam encouraged this condition or whether the same process that caused the secondary bleeding caused the dry or septic socket.

Summary

Gelfoam without thrombin was used for the prevention and treatment of hemorrhage resulting from the extraction of teeth in 28 cases. It was used in 3 cases to encourage the formation of a blood clot when the maxillary sinus showed a perforation after the extraction of an upper molar.

Gelfoam in combination with bovine thrombin was used in 1 case.

Dry Gelfoam can be cut readily to size and does not crumble or disintegrate when placed in or over a tooth socket.

It proved to be effective in preventing hemorrhage in patients having a history of bleeding after tooth extraction, and also in controlling hemorrhage which occurred immediately after the extraction of a tooth.

When Gelfoam was used to control secondary or intermediary hemorrhage, a much longer application of pressure over the wound was required than when fibrin foam and thrombin or Oxycel was used.—*490 Post Street.*

Democracy in Education. —Today the American educator is thinking in democratic terms to a far greater degree than did any previous generation of educators. To him, democracy means, increasingly, providing equality of opportunity to all the people of the community, both young and old, to grow and achieve to the extent of their powers. It means to grow physically, intellectually, morally, spiritually, aesthetically, and vocationally, and to achieve in all these areas as far as one desires and is able to achieve. It means not identical opportunities, but *equal* opportunities. It does not mean attempts at equal growth and achievement but only equal *opportunities* to grow and achieve. This means a most varied and flexible educational program.—*Arthur B. Mays, "The Relationship Between General and Vocational Education," J. Gen. Educ. 2:156, January 1948.*

THE Journal OF THE
AMERICAN DENTAL ASSOCIATION

APRIL-MAY, 1948 • VOLUME 36 • NUMBERS 4 AND 5

LON W. MORREY, D.D.S., *Editor*

Published by the American Dental Association • 222 East Superior St. • Chicago 11, Ill.

EDITORIALS

PRINTING PLANT DIFFICULTIES DISRUPT SCHEDULE OF JOURNAL

THE labor difficulties that have existed in the printing industry since last fall have now affected the publication of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION. On Tuesday, March 2, production was suspended because of labor disputes in the plant which prints THE JOURNAL. As a result, the Association has been forced to combine the April and May issues and publish the combined issue in reduced form. Every effort is being made to publish the June issue on schedule, but should labor difficulties continue, it, too, may be affected. It is hoped that JOURNAL subscribers and advertisers will understand the situation and make allowances for the difficulties caused by the national printing disturbances.

FEDERAL GOVERNMENT TO SPONSOR NATIONAL HEALTH ASSEMBLY

A NATIONAL health conference has been called at the request of President Truman in order to set up health goals for the nation for the next ten years. The conference, which will be officially known as the National Health Assembly, has been scheduled for May 1 to 4 in Washington, D.C. In requesting the development of this Assembly, President Truman wrote in January to Oscar Ewing, administrator of the Federal Security Agency:

The health of our people is of such importance to our national welfare and security that I wish to make certain that we are taking all possible steps to contribute to its improvement. I have, as you know, repeatedly requested the Congress to enact legislation designed to expand basic health services and to bring them within the reach of all the people . . . I should like to ask you, therefore, to undertake a comprehensive study of the possibilities for raising health levels and to report to me, at your earliest convenience, upon feasible goals which might be realized by the American people in the next decade.

If the Assembly attempts wholeheartedly to bring about agreement on issues which are of vital concern to the national health, it is likely that the public good will be served. If, however, the Assembly is to be used as a sounding board for what is euphemistically called "the President's program" and which is, in actuality, a program of compulsory health insurance, the result can only be multiplication of confusion.

The announced purpose of the Assembly is to determine the health facilities, personnel and needs of the nation and to recommend feasible methods of meeting those needs. An executive committee, composed largely of lay personnel and an only essential minimum of representatives of the health professions, has been announced by the Federal Security Agency. The secretaries of the American Dental Association and of the American Medical Association are members of this executive committee. Over seven hundred representatives of health interests, labor, business, governmental and civic organizations have also been invited to participate in the work of the Assembly. Sixteen or more panels will be established for the discussion of individual health problems, and one panel will be devoted entirely to dental health. The personnel of the dental panel has not yet been announced. On the completion of a panel's study, the findings will be reported to the Assembly and, presumably, will form the basis for future action.

The Assembly has many parallels to the National Health Conference which was held a decade ago to focus national attention on the administration's solution of the health problem. This solution, originally announced as a grants-in-aid method for the states, soon developed into an all-out drive for compulsory health insurance, which still remains the program of the present administration. If the purpose of the National Health Conference was to enlist public opinion in support of a federally controlled health program, its success was not significant. It was successful, however, in setting up barriers which prevented much of the normal progress that might have been made through agreement of opposing factors in the last ten years.

It is to be hoped that the coming Assembly, unlike its predecessor, will not be used to impose a ready-made program on the participants; that it will provide a real forum in which health problems can be rationally discussed and intelligently resolved. If this is done, the health program of the country can be benefited by bringing together the leaders of professional and consumer groups. The free and orderly exchange of ideas between those who receive and those who provide health services can point the way to a sane solution of the nation's health problem. It is to be hoped that the Assembly, at the outset, will announce such an objective and strive with all of its resources to attain it.

CHILD HEALTH DAY AND CHILDREN'S DENTAL HEALTH DAY

By authorization of an act of Congress, the President of the United States annually proclaims May 1 as Child Health Day, the purpose of which is to focus the thought of the nation on constructive measures to improve and protect the health and well-being of children and youth. During the month of April, many states and communities completed their plans for proper observation of this day.

Child Health Day, initiated by the American Child Health Association more than twenty years ago and sponsored each year by the United States Children's Bureau, deserves the support of every organization interested in the welfare of children. It has that support from the American Dental Association. In 1928 the House of Delegates endorsed the project and recommended to the component dental societies that "in each community of the country there be organized a definite program of dental examination and dental health education in the schools and among children of pre-school age."

Many state and component dental societies, acting on this recommendation, were successful in having dentistry incorporated in their community Child Health Day programs. Other societies found it more expedient to establish Children's Dental Health Day programs independent of Child Health Day. The success of these programs has been such that in 1946 the House of Delegates, on the recommendation of President Scherer and at the request of the Cleveland Dental Society, instructed the Council on Dental Health to complete plans for the development of a nationwide annual Children's Dental Health Day. The Council is perfecting the details of the program and will submit its recommendations to the House of Delegates in September.

An annual Children's Dental Health Day will not solve children's dental problems any more than Child Health Day has solved other problems of child health. But such a day can be used effectively by each community to evaluate the accomplishments of the past year and to initiate new activities for the future.

Until some inexpensive public health measure is discovered that will more adequately prevent dental caries, the disease can be controlled best by the establishment in each community of a comprehensive dental health program for children. The program must consist of dental education and dental service. It must have the full cooperation of the health and teaching professions. It must have the financial support of the community and it must function continuously throughout the year.

The establishment of a national Children's Dental Health Day should not diminish the dental profession's interest in Child Health Day. On the contrary, dentists are urged to continue to participate in this program. Both days are designed for the betterment of children and they should complement each other. The more dentistry cooperates with others in the observance of Child Health Day, the more others will cooperate with dentistry in the observance of Children's Dental Health Day.

INTERNATIONAL CORRESPONDENCE

News From Great Britain

A Month of Political Activity

February 1948 long will be remembered in Great Britain's medical and dental circles. It was a month of interest, activity and excitement.

On Monday morning, February 2, the newspapers stated that the British Dental Association had passed a resolution advising its members not to take part in the National Health Service which is to start on July 5. On Thursday, February 5, it was announced that there would be a debate on the National Health Service in the House of Commons on the following Monday, and on February 7 a memorandum was issued to all dental practitioners from the Minister of Health explaining the dental section of the National Health Service Act as he anticipated it would work. On the evening of February 9 the debate on the Health Service was reported in the papers as top news, and up to the minute accounts were broadcast on the radio.

The British Medical Association conducted a plebiscite to discover the doctors' attitudes toward the regulations of the proposed health service. The results announced on February 18 were as follows: in favor of the health act as it stands, 4,735; not in favor, 40,814. The following day the Minister of Health, in reply to a question in the House of Commons, said that he still was willing to discuss the matter with the British Medical Association but so far all the concessions had come from his side. The British Medical Association also claims to have made concessions, and there the matter stands.

B.D.A. Advises Members Against National Health Service

The following resolution was carried by 85 votes to 4, with 9 abstentions: "That the representative board of the British Dental Association, having given due consideration to the proposed details of the General Dental Service under the National Health Service Act 1946, finds that the provisions thereof which the Minister of Health seeks to impose are not in accordance with the principles which the Association advised the Minister were essential to provide a satisfactory dental service for the nation. The representative board, therefore, recommends all members of the Association to exercise their right under the Act to refuse to enter the service until the Act and its regulations are amended so as to include the principles advocated by the Association."

It was also resolved "That the Association is prepared in the public interest to maintain, with no sense of commitment, its contact and discussions with the Minister of Health in order that amendments may be obtained to the Act which would ensure a satisfactory dental service for the public."

National Health Service Debate

From the dental point of view this debate in the House of Commons was disappointing. With the exception of Mr. Baird, no one was much interested in the dental section, and since he spoke as a Socialist member of parliament and not as a member of the British Dental Association, the Association's points of view were attacked and remained undefended and unexplained during the rest of the debate. It was natural perhaps that the members of parliament preferred to discuss the attitude of the British Medical Association, as the regulations governing the dental side of the scheme have not been published yet and the Spens Report on the remuneration for dental practitioners participating in the service is not ready yet.

The main points at issue were the differences beween the Minister of Health and the British Medical Association. The debate gave the government the opportunity to explain the service and to attempt to justify its attitude in rejecting the amendments proposed by the British Medical Association. Secondly, the government hoped to influence some of the medical practitioners who had not completed the Association's plebiscite form. The Minister

of Health made no reference to the dental part of the service in his speech; his only allusion to it during the whole debate was when he interrupted Mr. Butler, who mentioned the rejection of the scheme by the dentists, to say that the dentists objected on the old ground that they wanted more money. Mr. Butler replied that the dentists were dissatisfied with the scheme as a whole and were not worried only about terms of remuneration. He hoped full clinical freedom would be preserved.

Sir E. Graham-Little wanted to know how the dental service could work when there was an inadequate number of dentists. Mr. Baird interrupted to quote the British Dental Association, which denies that there is a shortage of dentists. Sir Ernest said he preferred to accept the findings of the Teviot Committee which states that the number of practicing dentists is inadequate to give complete dental service at the present time.

Mr. Baird (a Socialist member of parliament and a dental surgeon) spoke at length. He felt that much of the opposition in the profession was due to propaganda which, in his opinion, misrepresented the true state of affairs. He disagreed with the recommendations of the British Dental Association, including that of grants-in-aid. He thought there was plenty of clinical freedom but would like to see crowns and inlays included in the list of operations that did not require prior approval. Mr. Baird hoped that the old outlook of the Dental Benefit Council would disappear in the new service, that the patient would get first consideration and that the financial implications would take second place. He wanted to see doctors and dentists in the service in great numbers so that they might be well represented and not allow the Minister to have full control, which was bound to happen if all did not join at the beginning. He concluded by stating his belief in the tremendous opportunities that lay ahead for the medical and dental professions.

Sir Hugh Lucas-Tooth thought that the main point at issue between the Minister and the dentists was the complicated one of clinical freedom and remuneration, and that there was ample room for a compromise between the parties. However, the negotiations had broken down, and Sir Hugh felt that the reason was the intransigence of the Minister. He had formed the opinion that the dentists believed the Minister's ultimate plans were for a full-time salaried service.

The government carried the motion with its usual comfortable majority.

Summary of the B.M.A. Plebiscite

Approval of the National Health Service Act 1946 in its present form, 4,735; disapproval, 40,814.

In favor of accepting service under the Act in its present form, 4,084; not in favor, 25,340.

Agreed to abide by the decision of the majority and undertake not to enter the service if the answers to the second question reveal a majority against undertaking service as defined in paragraph 4 of the preamble and if so advised by the British Medical Association, 24,066; disagreed, 4,494.

The figures for the first question are replies from all medical practitioners classified into nineteen different categories. The answers to the second and third questions are from only the first five categories (consultants, general practitioners and their assistants, full time voluntary hospital employees).

The plebiscite form was sent to every doctor whose name appears on the Medical Register and not to British Medical Association members only. The percentage of those voting (45,549) to the total number of ballots sent out (55,842) was 82 per cent.

Successor to Dr. Senior

H. Parker Buchanan has been appointed to succeed Dr. Senior as dental secretary of the British Dental Association. Mr. Buchanan is a Scot and was engaged in private practice in Glasgow before taking up his appointment. A member of the Representative Board of the Association for many years, he also has been a member of the Head Council of the Incorporated Dental Society. During the war he served with the Royal Navy, reaching the rank of Surgeon Commander (D). Mr. Buchanan has taken a prominent part in the affairs of the Association and should prove a worthy successor to the esteemed Dr. Senior.—*John Boyes, University of Durham, Newcastle Upon Tyne, England.*

A. D. A. AFFAIRS

BOARD OF TRUSTEES WILL MEET IN SPECIAL SESSION IN MAY

The Board of Trustees of the American Dental Association will hold a special meeting, May 29 to 31, at central headquarters to consider financial matters and prepare a budget for submission and approval by the House of Delegates at the annual meeting in September.

The results of the special meeting of the Board of Trustees will be announced in a future issue of THE JOURNAL.

W. R. ALSTADT FILLS COMMITTEE VACANCY CAUSED BY RESIGNATION

W. R. Alstadt, Little Rock, Ark., has been appointed by H. B. Washburn, president of the American Dental Association, to the Committee on Legislation. Dr. Alstadt will fill the vacancy caused by the resignation of Ira Brownlie of Denver. Dr. Brownlie's term was to have expired in 1951.

CHANGE MEETING PLACE OF HOUSE OF DELEGATES IN 1948

The House of Delegates of the American Dental Association will convene at the Hotel Sherman instead of the Congress Hotel during the annual meeting of the Association in Chicago, September 13 to 17.

The original plans were altered when it was learned that the Hotel Sherman is able to provide more spacious facilities and accommodations for the large membership of the House of Delegates.

Scientific meetings, including general sessions and table clinics, technical exhibits, scientific, educational and health exhibits, and section meetings will be held at the Stevens Hotel in Chicago, as previously announced.

The office of the secretary of the Association wishes to remind delegates and alternates to the House of Delegates to send in their names as soon as possible to Harold Hillenbrand, Secretary, American Dental Association, 222 E. Superior St., Chicago 11, for instructions and other material in advance of the annual meeting.

HOUSING BUREAU WILL HANDLE CONVENTION HOTEL RESERVATIONS

The June issue of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION will carry the complete list of Chicago hotels that will have rooms available for those planning to attend the annual meeting of the Association, September 13 to 17. An application blank and instructions for completing the application also will be included.

The Greater Chicago Hotel Association, through the Convention Housing Bureau, will handle all room reservations. June 1 is the earliest date for receiving applications for hotel reservations.

NAME SPECIAL COMMITTEES AT FEBRUARY BOARD MEETING

The following special committees, committee chairmen and members were named by H. B. Washburn, president, during the meeting of the Board of Trustees of the American Dental Association last February in Chicago.

Committee to study date of assuming office—Willard Ogle, chairman; J. E. John, Sr., and Henry Hicks. Committee on affiliated groups—Daniel F. Lynch, chairman; Henry Hicks, and Robert P. Thomas. Committee to study

life membership program—Leslie M. FitzGerald, chairman, of the Committee on Economics; C. S. Foster and Harold Hillenbrand. Committee on social security for professional men—William McGill Burns, chairman; Carl O. Flagstad, and R. H. Volland.

Committee to study signing of Association contracts—H. B. Washburn, Harold Hillenbrand and Harold W. Oppice. Committee to prepare a statement of policy on investments—J. B. Carr, chairman; William McGill Burns, and Fred S. Shandley. Committee to study the policies and activities of the National Committee of Dentists—LeRoy M. Ennis, chairman; J. E. John, Sr., and C. S. Foster.

CONVENTION DATA FOR EXHIBITORS WILL BE AVAILABLE IN JUNE

Convention information of interest to prospective commercial exhibitors is being prepared at the present time by the office of the business manager of the American Dental Association.

This material will be available on or about June 1 and will be sent to manufacturers and distributors on the mailing lists of the Association.

DENTAL SOCIETIES

SENATOR TAFT INDORSES SOME FEDERAL AID FOR DENTAL NEEDS

In a statement read for him before the postgraduate clinic of the District of Columbia Dental Society on March 14, Senator Robert A. Taft (R., Ohio) indorsed federal programs for dental research and dental examinations for school children. He also repeated his opposition to socialized medicine in any form. Senator Taft stated:

> In my opinion, the federal government should assist states and local communities in plans made by the states to provide dental care for those who are unable to pay for it themselves. It is particularly necessary that the federal government assist in a program to have the teeth of all school children regularly examined, and when they cannot pay for dental service themselves, treated at the expense of the state. . . .

Senator Taft also said that similar free dental care for adults would be an "expensive and difficult proposition," but recommended that the federal government assist states in establishing programs for those who are unable to pay for dental treatment.

ELECT SEVERAL OFFICERS AT FEBRUARY MEETINGS

The following were elected to their present positions at recent meetings of their respective committee or organization: William S. Moyes, Ogden, Utah, secretary of the Committee on Military Affairs of the American Dental Association; Emil H. Bollwerk, St. Louis, president of the National Dental Veterans' League; William B. Cockroft, Memphis, Tenn., president-elect of the National Dental Veterans' League, and Marvin E. Chapin, Elmhurst, Ill., secretary of the Committee on Military Affairs of the Illinois State Dental Society.

ELECTION AND OTHER ACTIVITIES OF STATE, COMPONENT SOCIETIES

Berkshire County, Massachusetts. —New officers elected to the Western District Dental Society of Massachusetts are as follows: Joseph W. Farrell, Jr., secretary (this position is comparable to that of president); Walter R. Seaman, treasurer; Jason L. Leavitt, editor, and Bernard Mack, chairman of the executive committee.

Delaware.—At the annual meeting of the Delaware State Dental Society in January, the following were elected as officers for 1948: James Krygier, president; Richard Wier, first vice-president; C. W. Johnson, second vice-president; H. Har-

rison McAllister, treasurer, and George Zurkow, secretary.

Florida.—The officers of the Florida State Dental Society for 1948 are: Horace L. Cartee, president; T. C. Henslee, president-elect; Alvin J. Fillastre, first vice-president; Donald Morrison, Sr., second vice-president, and John I. Todd, secretary-treasurer.

Kansas.—The Kansas State Dental Association is sponsoring the presentation of a two hour lecture on "Fluoride Therapy and Caries Control" by Leon R. Kramer, director of the Dental Hygiene Division, Kansas State Board of Health.

The lecture has been given at three district meetings, several study clubs and county dental society meetings. It is illustrated by the use of large, exhibit-type posters.

Milwaukee.—Newly installed officers of the Milwaukee County Dental Society are T. M. Strobel, president; A. H. Bassman, president-elect; J. M. Schlick, vice-president; J. E. Cahlamer, secretary; H. J. Hinkamp, treasurer; Anna L. Hehn, librarian, and J. A. Englander, director.

New Jersey.—Six New Jersey dentists, who have had at least fifty years of practice, recently were honored at a luncheon for their long service to dentistry.

These dentists are: Albert J. Westlake of Rahway, John W. Kingsland of Ridgewood, William A. Pruden of Paterson, Frank T. Clawson of Plainfield, Herbert E. Williams of Red Bank, and Walter Woolsey of Elizabeth.

New York.—The Board of Directors of the First District Dental Society of New York, through its Lord-Chaim Prize Committee, awarded the Lord-Chaim Prize for 1947 to Paul H. Keyes of the Harvard School of Dental Medicine. Dr. Keyes' paper was on "Dental Caries in the Syrian Hamster."

Puerto Rico.—Newly elected officers of the Puerto Rican Dental Society, Cirujanos Dentistas de Puerto Rico, are: president, Narciso Munera; first vice-president, Hermez Valez Franceschi; second vice-president, Hector Bruno; secretary, E. Capo; treasurer, Carlos Maristany, and auditor, Marcos A. Dones.

Robert Wells, president-elect (left) and Harry A. Hartley, president, of the Chicago Dental Society, photographed at the annual midwinter meeting of 1948 in Chicago

TELECAST PART OF GREATER PHILADELPHIA DENTAL MEETING

Some of the events of the Philadelphia County Dental Society's Greater Philadelphia annual meeting were photographed for the news telecast television program on February 5 at 7 p. m. over Station WFIL-TV in Philadelphia.

This is believed to have been the first time that a dental convention has been broadcast by television in the United States.

NEWS OF STATE SOCIETIES MEETING IN MAY

Nebraska.—The eightieth annual meeting of the Nebraska State Dental Association will be held May 10 to 12 at the Fontenelle Hotel, Omaha. The following specialists are scheduled to participate in the meeting: Donald T. Waggener of Lincoln, M. H. Mortonson,

The College of Dental Surgeons of Puerto Rico awarding an honorary membership to Howard A. Hartman of Cleveland. Left to right, F. Garcia, past president, Dr. Hartman, Miguel Pastrana, president, and Narcisco Munera, president-elect

Jr., and T. K. Mortonson, both of Milwaukee, Wis., Don E. Woodard of Kansas City, Mo., and Emil D. W. Hauser, M.D., of Chicago.

Tennessee.—The 1948 annual meeting of the Tennessee State Dental Association will be held May 24 to 27 in Memphis. Participating at the meeting are the following essayists: Reed O. Dingman of Ann Arbor, Mich., Balint Orban of Chicago, A. O. Klaffenbach of Iowa City, Ia., and Warren Willman of Chicago.

INTERNATIONAL

BRITISH MEDICAL ASSOCIATION DEFIES NATIONAL HEALTH ACT

With no one dissenting, nearly 400 physicians, comprising the Representative Body of the British Medical Association, adopted a resolution on March 16 declaring that it was not in the interest of the public or of themselves to accept service under the National Health Service Act until the legislation was amended to "maintain the integrity of medicine and prevent doctors being turned into state servants."

In taking this position, the Representative Body had behind it the ballots of 89 per cent of the physicians who voted in the recent plebiscite on the Health Act. The Representative Body also voted that the health scheme should be postponed until the facilities and personnel were available to operate it.

In order to finance the continuing fight against the Health Act, which goes into effect on July 5, the Representative Body voted to establish an "independence" fund. Approximately $1,600,000 was set aside initially for this purpose.

BRITISH PHYSICIANS OPPOSE NATIONAL HEALTH SERVICE ACT

Eighty-six per cent of Britain's medical practitioners, specialists and consultants have voted against working for the universal free medical service scheme, known as the National Health Service Act, scheduled to take effect July 5.

The British Medical Association sent out approximately 56,000 ballot forms to doctors in Great Britain, and British doctors elsewhere, in an attempt to determine what percentage approved or

disapproved the Health Service Act. Of the physicians in all categories, 89.5 per cent disapproved participation in the Health Service Act. The vote was 40,814 to 4,735. Eighty-two per cent of the ballots were returned.

The plebiscite form was divided into three sections: (1) I approve/disapprove of the National Health Service Act of 1946 in its present form; (2) I am in favor/I am not in favor of accepting service under the Act in its present form, and (3) I agree to abide by the decision of the majority and undertake not to enter the service if the answers to question 2 reveal a majority against undertaking service . . . and if so advised by the British Medical Association.

Physicians' Objections. —The three main objections that the British physicians have to the National Health Service Act are the small basic salary for practitioners (in addition to the capitation fee), the abolition of the sale of practices within the service, and the refusal of a right of appeal to the courts of law by a physician dismissed from the service by an official decree.

The plan provides for a basic salary of $1,200 for each participating physician plus three dollars for each patient registered with him. Employers and employees will make compulsory weekly contributions for the service and every man, woman and child will be eligible for treatment.

The physicians object to the small basic salary feature as they fear it ultimately will result in complete payment by salary, which would convert the practitioners into officials under complete control by the government.

British Medical Association's Reply.—The *British Medical Journal* in its January 10 issue states:

> Doctors are now fully alive to the implications of the National Health Service Act and becoming firm in their resolve to say "no" to a Minister (Aneurin Bevan, Minister of Health) whose method of negotiation is to alternate blandishments with threats in his successful attempt to avoid discussing those matters which the Negotiating Committee consider to be fundamental points of disagreement between the medical profession and the Ministry of Health. . . . It is for the doctors of this country to decide whether a medical service begun in this way and initiated by a Minister who has shown himself contemptuously indifferent to reasoned arguments shall come into operation in July this year. . . . The medical profession is in a strong position and should be more conscious of that fact. Its services are indispensable to the welfare of the community and will, of course, never be withheld. But it can determine the conditions of its work and insist upon maintaining a framework of liberty and freedom which at the same time includes order. That framework of freedom and liberty is not present in the National Health Service Act of 1946, and the Minister has refused to modify its structure. . . .

LATIN-AMERICAN DENTISTS VISIT A.D.A. CENTRAL OFFICE

Several Latin-American dentists attending the midwinter meeting of the Chicago Dental Society in February visited the central office of the American Dental Association. Visitors from Argentina included Abraham Rapoport, Roberto Moroni and Jorge Bello.

Dr. Rapoport of Avellaneda and Buenos Aires is interested primarily in dental health education work in his country and is engaged actively in collecting material for the presentation of the Second Dental Hygiene Clinic scheduled for the coming year in Argentina. Together with Guillermo Ries Centeno of Buenos Aires, Dr. Rapoport served as official representative of the Asociación Odontológica Argentina at the Chicago meeting.

Dr. Moroni, also of Buenos Aires, is at present a student at the Kellogg Foundation at the University of Michigan. He is making a comparative sur-

vey of the ways and means of caring for the dental needs of indigent persons in this country and Argentina.

Dr. Bello, an orthodontic specialist, has been taking postgraduate courses in Cuba and the United States. He is returning to his home in Santa Fé, Argentina, where he is the only full time orthodontist in practice.

Brazilian representatives to the convention were headed by Francisco Degni of Sao Paulo. Dr. Degni is the president of the Associacao Paulista de Cirurgioes and the immediate past president of the Brazilian Dental Association. He was accompanied by his brother, Emanuel Degni of Sao Paulo, and Antonio Campoda Olivera of Río de Janeiro.

AUSTRALIAN DENTAL ASSOCIATION HOLDS 11TH CONGRESS IN MAY

The Australian Dental Association will hold its first congress since 1939 on May 24 to 29 in Perth, West Australia. At this meeting, known as the Eleventh Australian Dental Congress, emphasis will be placed on the developments in the various branches of dentistry during the past nine years.

A scientific program including clinics and demonstrations, commercial exhibits, hobby exhibits and a social program have been planned.

CANADIAN DENTAL ASSOCIATION HOLDS ANNUAL MEETING IN JUNE

The annual convention of the Canadian Dental Association is to be held this year in the Manoir Richelieu Hotel, Murray Bay, Quebec, June 20 to 24.

Essayists in the program include George G. Exner of London, England; Harold Hillenbrand, secretary of the American Dental Association; Philip Jay of the University of Michigan; Leroy Miner of Boston, and Kurt Thoma of Harvard University. Group and table clinics by Canadian and American clinicians, and films depicting various technics, also are to be featured at the five day meeting.

For information regarding transportation arrangements and reservations write to Dr. Gustave Ratté, 140 St. John St., Quebec City, Quebec.

DENTAL EDUCATION

TWO RECEIVE HONORARY DEGREES AT TEMPLE UNIVERSITY

A. E. Rowlett of Leicester, England, and James R. Cameron, professor of oral surgery at the School of Dentistry, Temple University, received honorary degrees on April 16 during the formal opening ceremonies of Temple University's new School of Dentistry.

Dr. Rowlett, a past president of the British Dental Association and honorary president of the Fédération Dentaire Internationale, spoke on the practice of dentistry under England's proposed social legislation.

The two day formal opening ceremonies began on the morning of April 15 with three symposiums held concurrently and moderated by members of the dental school faculty. The programs and the speakers were: oral surgery—J. Orton Goodsell, Saginaw, Mich; Howard C. Miller, Chicago; Leslie M. FitzGerald, Dubuque, Iowa, and moderator, James R. Cameron; dental caries—Thomas J. Hill, Cleveland; Philip Jay, Ann Arbor, Mich.; Robert G. Kesel, Chicago, and moderator, Herbert M. Cobe; periodontia—Howard A. Hartman, Cleveland; Maynard K. Hine, Indianapolis; Isadore Hirschfeld, New York, and moderator, Jacoby T. Rothner.

After a luncheon period, which was left open to allow time for class reunions and alumni meetings, there were three more symposiums with faculty members serving as chairmen: pros-

A. E. Rowlett, left, of England, and James R. Cameron, of the dental faculty of Temple University who received honorary degrees on April 16 during the formal opening ceremonies of the new School of Dentistry, Temple University

thetic dentistry—Theodore A. Bodine, Akron, Ohio, and chairman, Sumner X. Pallardy; pedodontics—George W. Teuscher, Barrington, Ill., and chairman, Ernest Ritsert, and radiodontia—Leroy Main, St. Louis, and chairman, William J. Updegrave.

H. B. Washburn, president of the American Dental Association, and Arnold D. A. Mason, president of the American Association of Dental Schools, were speakers at the dinner on the night of April 15.

The afternoon of April 16 was devoted to an open house throughout the new building of the dental school.

AMERICAN ASSOCIATION OF DENTAL SCHOOLS MEETS IN JUNE

The twenty-fifth annual meeting of the American Association of Dental Schools will be held at the Statler Hotel in Buffalo, N. Y., June 21 to 23. This year the program is divided into two group sessions, one on administration and one on teaching of biochemistry, nine conference sessions on teaching of dental subjects, two general sessions and the annual business session.

Arnold D. A. Mason, president of the association, is chairman of the administrative group session, and Lloyd E. Blauch is chairman of the group session on the teaching of biochemistry. The following are the chairmen of the nine conference sessions on teaching: Maury Massler—pedodontics, S. C. Applegate—partial denture prosthesis, J. Frank Hall—oral surgery, Maynard K. Hine—periodontia, J. Raymond Gill—crown and bridge prosthesis, Paul H. Jeserich—graduate study, Frank C. Hughes—full denture prosthesis, Robert E. Blackwell—operative dentistry and S. P. Vail—oral diagnosis.

A clinic administration program, dealing with problems of universal interest to dental teachers and administrators, will be presented on Wednesday morning, June 23. Harry B. McCarthy is the chairman and Raymond E. Myers, Marvin E. Chapin, William J. Simon and Erling Thoen are the main speakers.

The annual dinner of the association

will feature a testimonial to Harlan H. Horner, retiring secretary of the Council on Dental Education of the American Dental Association. Dr. Horner and Shailer Peterson, director of Educational Measurements of the Council on Dental Education, have prepared a symposium on aptitude testing, which will be presented in panel discussion form during the administrative group session. Participating as members of the panel are Leroy R. Boling, Willard C. Fleming, Bert L. Hooper, Gustav W. Rapp, Ray V. Smith and Gerald D. Timmons.

1923 CLASS OF N. Y. UNIVERSITY HOLDS 25TH YEAR CELEBRATION

The class of 1923 of the College of Dentistry, New York University, will hold its twenty-fifth year celebration on Thursday, May 6, in New York.

The program committee has planned the following events: a class reunion luncheon, an address by Dean Walter H. Wright of the College of Dentistry, and clinics by members of the class of 1923, at the George Washington Hotel. A dinner and entertainment at the Champs Elysees Restaurant will bring to an end the activities of the twenty-fifth year celebration of this class.

FEDERAL AGENCIES

APPOINT HEALTH ASSEMBLY DENTAL STEERING COMMITTEE

On March 24 and 25 a steering committee of five members met to prepare the agenda of the dental health section of the National Health Assembly scheduled to be held in Washington, D. C., May 1 to 4. The committee members are Ernest G. Sloman, dean of the School of Dentistry, College of Physicians and Surgeons, at San Francisco, chairman; Philip E. Blackerby, Jr., director of dentistry at the W. K. Kellogg Foundation, Battle Creek, Mich., secretary; Allen O. Gruebbel and Harry Lyons of the American Dental Association, and Mrs. Charles D. Center, representing the National Congress of Parents and Teachers.

The dental health section of the Assembly, which was formed with the intention of closing the gap between dental needs and dental care, will include more than thirty experts representing not only professional groups and state and local public health agencies, but also lay groups interested in the problems of dental health. The members of the steering committee were appointed by the Federal Security Agency of which Oscar R. Ewing is administrator.

Dentists who have been invited to participate in the dental health section of the National Health Assembly are as follows: Ned Arganbright, Ira D. Beebe, J. C. Brauer, D. W. Brock, M. D. Clawson, Clifton O. Dummett, Kenneth A. Easlick, L. A. Gerlach, W. A. Jordan, Theodore Kaletsky, Dorsey Kirk, H. M. Kulstad, R. C. Leonard, Harold J. Noyes, Oren A. Oliver, Harold W. Oppice, John W. Ross, Leo J. Schoeny, Alfred E. Seyler, R. M. Walls, William D. Wellock, H. B. Washburn, Walter A. Wilson and Carl Wilzbach.

Dental personnel on sections other than dental health are: John T. O'Rourke, Malcolm W. Carr, R. C. Dalgleish, Isaac Schour, J. A. Salzman, Clyde E. Minges, Allan G. Brodie, A. J. Asgis, Frank J. Houghton, G. D. Timmons, Carl L. Sebelius, William McGill Burns and H. B. G. Robinson.

EWING APPOINTS HILLENBRAND TO NATIONAL HEALTH ASSEMBLY

Harold Hillenbrand, secretary of the American Dental Association, has been appointed by Oscar R. Ewing, administrator of the Federal Security Agency, to the executive committee of the Na-

tional Health Assembly which meets May 1 to 4 in Washington, D. C.

Dr. Hillenbrand, together with George F. Lull, secretary and general manager of the American Medical Association, will represent the dental and medical professions on the executive committee of the Assembly.

More than 800 men and women, concerned with the health and welfare of the American people, are expected to attend the Assembly in an attempt to develop national health goals that will be feasible during the next ten years.

The business of the Assembly will be conducted in fourteen sections, each one to explore a specific phase of national health problems. The fourteen sections will consider professional personnel, hospital facilities, local health units, chronic disease, maternal and child health, rural health, research, medical care, community planning, rehabilitation, dental health, mental health, accidents and nutrition.

Leonard A. Scheele, who succeeded Thomas Parran on April 6 as surgeon general of the U. S. Public Health Service

SCHEELE SUCCEEDS PARRAN AS U.S.P.H.S. SURGEON GENERAL

Leonard A. Scheele, M.D., was named to succeed Thomas Parran as surgeon general of the United States Public Health Service when Dr. Parran's term expired on April 6.

Dr. Scheele formerly was assistant surgeon general of the Public Health Service. His background in public health work is both varied and long. In 1934, he was commissioned in the Public Health Service and had as his first assignment the position of assistant quarantine officer at the Port of San Francisco. Dr. Scheele held the same position at the Port of Honolulu in 1935 and 1936, and was health officer at Queen Anne's County, Md., the following year.

Dr. Scheele was the officer in charge of the National Cancer Control Program of the National Cancer Institute from 1939 to 1942. He next held the position of chief of the field casualty section, Medical Division, United States Office of Civilian Defense in 1942 and 1943.

From 1943 to 1945 he worked with the Army in a variety of major assignments in war areas in Europe. Dr. Scheele also served as medical representative of the Allied Control Council, Medical Section, in Berlin. For his work in controlling communicable diseases he received the Legion for Merit award.

During 1946 and 1947, Dr. Scheele was assistant chief of the National Cancer Institute of the Public Health Service. In July 1947 he took over his present position of assistant surgeon general of the Public Health Service and director of the Cancer Institute.

GENERAL NEWS

WESTON A. PRICE DIES IN CALIFORNIA ON JANUARY 23

Weston A. Price, 77, a pioneer in the field of preventive dentistry in Cleveland, died of cardiac failure on January 23 at his home in Santa Monica, Cal.

Dr. Price was born near Newburgh, Ont., and received some of his training at the Collegiate Institute in Napanee, Ont. He was graduated from the School of Dentistry, University of Michigan, in 1893 and began practice at Grand Forks, N. D. Later he moved to Cleveland where he practiced for fifty years.

From 1925 to the time of his retirement in 1943, Dr. Price was especially interested in the importance of nutrition in the field of preventive dentistry. He gained international recognition for his studies in nutrition.

T. B. McCRUM SUCCUMBS TO INJURIES ON JANUARY 30

Thomas B. McCrum, one of the first pedodontists in the United States, died on January 30 at the age of 70.

Long a well known specialist in dentistry for children, Dr. McCrum also was active in pedodontic research. His original ideas in this field led to the production of several motion pictures as aids in teaching dental care to children.

Dr. McCrum, who was born in Huntington, Ind., was graduated from the Dental School, Northwestern University, in 1901. In 1905, Dr. McCrum became a member of the faculty of the Kansas City Dental College, and in 1920 he joined the staff of the Deaner Institute in Kansas City as the head of the children's dental dvision.

COMMITTEE ON LEGISLATION

HOUSE COMMITTEE HOLDS HEARINGS ON DENTAL RESEARCH BILL S. 176

THE Interstate and Foreign Commerce Committee of the United States House of Representatives held a public hearing March 11 on dental research bills H.R. 4200, H.R. 574, and the identical Senate bill S. 176 passed by the United States Senate July 24, 1947, and sent to the House for their action. H.R. 4200 was introduced by Rep. Walter E. Brehm of Ohio. H.R. 574 was introduced by Rep. Oren Harris of Arkansas. The dental research bill S. 176 sponsored by the American Dental Association provides an appropriation of two million dollars for the establishment of a National Institute of Dental Research and an annual appropriation of $730,000 for purposes of research and studies relating to the cause and treatment of dental diseases.

The Legislative committee of the American Dental Association presented the following witnesses who testified in favor of the bills: Carl O. Flagstad, chairman, Committee on Legislation; Harold Hillenbrand, secretary of the American Dental Association; Harold E. Hodge, president, International Association for Dental Research; Walter W. Wright, dean of the College of Dentistry, New York University; Richard C. Leonard, past president of the American Association of Public Health Dentists; Sterling V. Mead, past president of the A.D.A.; Charles B. Hall, secretary, Research Commission; and H. C. Byrd, President of the University of Maryland. There was no testimony presented at the hearing against the bill.

Statement of Dr. Parran, Surgeon General, United States Public Health Service

Dr. Thomas Parran, who for the past twelve years has been Surgeon General of the Public Health Service, made a strong plea for the bill. In summing up his testimony Dr. Parran stated:

The results of many studies indicate that dental illness is an almost universal affliction. Dental research is in its infancy, and most of it is in the nature of applied research rather than in the basic studies which offer far greater promises of fruitful results. The shortage of trained investigators in dentistry is acute and incentives to induce new workers to enter this field are lacking.

In my opinion, the proposed legislation which your Committee is now considering deals realistically with all of these problems. It would go a long way toward placing dental research on a scale commensurate with the need. It would encourage greater emphasis on basic research. It would offer incentives to young people to make dental research their career, and it would finance improved facilities for their training. Furthermore, by the establishment of a National Advisory Dental Research Council it would set up a competent, central body to coordinate the Nation's total research effort in this field. While I am convinced that the Nation must find some means of increasing the number of trained persons in dentistry and in

all health fields, I do not believe it is possible or practical to train enough dentists to assure the Nation of dental health if present conditions remain unchanged. Consequently, I believe research offers our best and probably our only hope of securing dental health for all of our people.

Testimony for the Legislative Committee of the American Dental Association

Carl Flagstad, chairman of the group which testified for the American Dental Association, presented a brief history of the Association's past efforts to secure passage of the dental research bill. He said in part:

The American Dental Association has long recognized the need for intensified dental research to combat the problem of dental diseases for although the United States has the most efficient dental service in the world, it has been impossible to keep abreast of the ravages of dental disease as it is such a universal and continually recurring affliction. It is rather a sad commentary on the control of a disease to note that the great majority of our people over the age of fifty years must resort to artificial dental substitutes and many must do so long before this age. Evidence presented by our witnesses will indicate that although an increase in professional manpower may be advisable to render adequate dental care, we shall never be able to maintain our people in desirable dental health solely through treatment of dental disease. The only hope of successfully attacking the problem lies in finding the cause of dental diseases through dental research and the devising of means for the prevention of same.

After his introductory remarks Dr. Flagstad introduced the witnesses for the American Dental Association. Excerpts from their testimony follow:

Dr. Hillenbrand. I am appreciative of the opportunity of appearing before this committee to testify on S. 176 because I believe its approval by this committee and its subsequent approval by the House of Representatives will represent one of the biggest contributions that can be made to an improved dental program for this country. There is an urgent necessity for the passage of this bill.

The job that has been done in dental research since the turn of the century is tremendously significant in terms of progress that has been made by members of the dental profession with little or no aid from outside agencies. It is not significant in the terms of progress that could have been made if more resources could have been made available by other agencies which have a responsibility for dental health. In short, decided progress has been made in research by dentists, dental societies and dental schools alone. A better job can be done in a shorter time by the passage of S. 176 which will enable the federal government, the state governments, public and private institutions to accelerate their programs in dental research under a coordinated program. These statements can be emphasized by pointing out that the American Dental Association, supported solely by the contributions the dentists themselves make through their annual dues, is one of the major agencies of dental research in this country. Last year the Association budgeted more than $100,000 of its own funds for various types of dental research including the cost of maintaining research fellowships at the National Bureau of Standards, The National Institute of Health and at the Army Institute of Pathology.

The dental schools of the country have also made their contributions to dental research but many are hampered in this field by the necessity of devoting their major resources to the maintenance and improvement of their programs for training dentists. . . .

An example of the importance of dental research can be found in the work that has been done with fluorine, an element which is found in various forms in nature. A dentist discovered that when an excess of this element was found in drinking water, the teeth suffered from mottling, a condition which makes the enamel surfaces appear much like stucco walls. A dentist also discovered that when a small amount of this element was present in drinking water it not only prevented mottling but also seemed to prevent dental decay. Intensive research, with severely limited funds and personnel established these facts as true and further research uncovered the fact that applying a solution of fluorine will also reduce dental decay in children from 40 to 50 per cent. Experiments are now being carried on in various places to gain a more complete knowledge of the processes that are involved. If these findings

are favorable, dentistry, through research, will have forged one of the most important powerful weapons in the history of dentistry. It will have provided the first real public health approach to this almost universal disease. . . .

A tremendous beginning on a coordinated research program can be made with the round sum of two and three quarters million of dollars which this bill calls for. This will provide separate facilities for dental research which, however, can be integrated with all other fields of the health sciences. It will earmark funds for dental research which cannot be channeled off into other fields on the mistaken assumption that other diseases are more important. It will aid in the provision of equipment and personnel without which no research program can be productive. It will provide a very great incentive for research workers in dentistry throughout the country. It will aid in maintaining the leadership in dentistry which this country has established over the rest of the world. It will provide the coordination and exchange of information which prevents the costly duplication of facilities and the time-consuming searches which previous investigation and study have revealed as nonproductive.

The total problem of dental health in this country lies beyond the resources which can be provided by the members of the dental profession themselves. This is no admission of failure for the record of the profession speaks for itself. It is, however, an admission that other agencies responsible for dental health have not carried their fair share of the burden. Government — federal, state and local — has ignored the problem for too long a time. . . .

S. 176 represents a conservative, scientific, reasonable and economical approach to the problem of dental research and dental health. It has the united support of the dental profession of this country. It has the backing of many other groups interested in national health. It has raised no single voice in opposition. It constitutes recognition of the fact that dental health is important to people and that the health of the people is important to the nation.

Dr. Hodge. The impact of the war on dental research was unfavorable; it increased the cost of dental education and interfered with the training of young scientists to be teachers. The war years were not favorable for the expansion of dental research programs. The need for intensive study of dental health problems was clearly brought out in the dental examinations of draftees. The diseases of teeth and the supporting soft structures are typical of the chronic, widespread civilized diseases which are coming to be recognized as the major health problems of the immediate future.

The creation of the National Institute of Dental Research and the development of this institution as a research center will fill an acute need. Two major aspects of the service of such a center should be stressed: (1) the production of technical information directed toward the solution of health problems, and (2) the training of young men in scientific methods who would then be available for dental school faculties, and for positions in the health programs of the nation. . . .

The need for trained men in dental research cannot be over-emphasized. In the fifth volume of the Steelman report, page 9, it is stated, "Without a supply of highly trained and skilled investigators, funds and facilities for research are meaningless." An institute will train young men as junior research workers; it will offer fellowships to bring young men interested in investigative work to the institute for training and it will foster research activities presumably by the familiar device of grants-in-aid to dental schools.

The present situation with regard to trained men could hardly be described as other than critical. It is almost impossible to obtain young men with special experience in research as teachers in dental schools or as research workers in the Public Health, armed forces or State and Federal health programs. . . .

The research institute would foster interest in investigation by the faculty members of our dental schools. In general, the dental schools find themselves in a chronic condition of poverty so acute that little dental research is or can be done. The research institute would build research programs in these schools, it would invite applications for grants-in-aid, contact interested persons and assist them in obtaining money. . . .

The International Association for Dental Research, which I have the honor to serve as President, is the only organization representing dental researchers in this country. The Council of the International Association for Dental Research unanimously endorses S.176 and requests

an immediate enactment of this important bill.

Dr. Wright. When we speak of dental diseases we are not referring to an insignificant malady confined to a few of our citizenry. On the contrary, it is the most widespread disease in the nation. It has been estimated that it would cost approximately five billion dollars and require the services of almost one-half million dentists, for one year, to rehabilitate the mouths of adults who suffer from dental diseases. This does not include the cost of maintenance of dental health after these mouths have been restored to health. Obviously, such a sum of money is not available and, if it were, there are only 85,000 dentists. An increase in the number of dentists has been suggested as the solution of the problem. It is a good suggestion, but let us view it realistically.

If we were to use all of our present facilities to increase the number of dentists, it would be over four years before the first increased class would graduate from our dental schools and that class would not exceed 2,700, against 2,225 dental graduates in 1947. Our present enrollment in all dental schools is approximately 8,872. This includes 3,022 Freshmen, 2,800 Sophomores, 1,400 Juniors and 1,650 Seniors. The maximum total enrollment would not exceed 11,000 if every available space were occupied. . . .

The universal prevalence of dental disease, the lack of dentists, the increasing time consumed in providing restorative dental treatment, and the growing cost of dental care call for urgent and extensive research into the causes and prevention of dental diseases, disorders and deficiencies. . . .

We have been reminded that one of the most important responsibilities of a democracy is to protect its citizenry. This means protection not only from the assaults of enemies without, but also from the less hostile yet equally devastating ravages of disease, disasters, suffering, and injustices within. . . .

We who are concerned with dental education see in our present health problems the overwhelming need for prevention but there are few funds with which to carry on the research that would make prevention a reality. We admit that research is the bedrock of our national security, prosperity, and leadership, yet the dental profession from generation to generation has spent most of its time, figuratively, digging itself out of one decayed tooth into another, hoping, waiting, for help that has not come.

A recent publication, *Dental Education Today*, by Harlan H. Horner, Secretary of the Council on Dental Education of the American Dental Association, contains recent observations relative to the need for dental research (p. 305): "The great majority of humankind is afflicted with dental ills. The reason why the teeth begin early in the life of the individual to fail to serve their natural functions properly are yet largely hidden. These two broad facts alone demand continued inquiry. . . . A generous endowment of research in every dental school in the United States would eventually exert beneficent influence upon the dental health of the American people."

I express the opinion of the members of the American Association of Dental Schools in stating that the future development of dental education and the dental profession, the health and happiness of the people, and the human resources of our nation will be benefited by the passage of these bills.

Dr. Leonard. The present great factor in the maintenance of mouth health must be augmented by the benefits of research if the problem is ever to be solved—or even to be materially decreased. That present "greatest factor" is the service of the American dentist—a service unequalled within the limitations set up by the number of dentists in any of the so-called health services.

But there are limitations to the amount of service a dentist, or that all dentists, can render. If dental service is to be extended to more and more people, if one envisions *all* of the population as having dental service available to them, either one of two things must occur. Either the number of dentists must be greatly increased or the dental profession must be armed with new means of preventing the initiation of dental ailments and of combating those ailments still likely to occur. These "new means" are the findings of research projects in the field of dental health. The likelihood of an increase in the number of dentists by the variously suggested necessary percentages (ranging as high as 100 per cent) is obviously doubtful. Such an increase would take years of time, would reach staggering costs and, most important, might possibly be accomplished only by the lowering of the caliber of training which American

dentists now get and which the public deserves and has learned to expect. A gradual increase in the number of dentists, trained with the same thoroughness as at present, is the most logical way to influence the numerical factor of the problem. But this does not answer the problem of dental health. . . .

The possibilities of dental research are nearly limitless. Suffering and life itself may be saved through the research sought under bill S.176 and H.R.4200.

Dr. Mead. The mouth is subject to more diseases than any other part of the body. Dental health is therefore one of the most important factors in the health of an individual. It is well known that the mouth is very intimately associated with many of the diseases of the body. Where there is dental disease some form of systemic disturbance usually follows. The presence of systemic disease is often first detected by the presence of mouth lesions

American dentistry has for many years been interested in the extension of dental health services to more individuals. The problem is so large that it cannot be attacked successfully alone by repair of damaged issues or by the replacement of lost tissues. It seems rather hopeless to continue efforts to promote general health and dental health by correction of dental defects and the making of dental replacements without more emphasis upon other factors involved. The greatest single factor is determining definitely the causes of the two most common diseases of man; namely, the decay of the teeth (caries) and the destruction of the guns and underlying bone (pyorrhea). At the present time authorities differ as to the definite causes of these diseases. Until the cause is definitely determined, adequate preventive measures are difficult. There are a number of experimental plans now in operation which offer possibilities for success. Among these plans are dental lay education, prophylactic measures, continued dental care, diet control, and fluorine treatment. Our present need is dental research. The research that has been carried on regarding dental diseases has been largely financed by American dentists themselves and a comparative small amount has been forthcoming from other sources.

In the governmental expenditures for health service research plans only an infinitesimal amount of monies available have been diverted to dental research because the dental profession has been represented in higher echelons of authority to obtain the necessary attention and cooperation. . . .

When there are half as many dentists in the United States as physicians and when dental diseases are more extensive than the diseases of other parts of the body, then it is apparent that dental research should command more public attention and just consideration.

Dental research needs independent recognition by the Federal Government. It needs trained scientists interested in dental research who will plan, direct and administer an adequate program for the benefit of the people.

In two previous sessions of Congress the American Dental Association has had research bills pass the Senate and die in the House of Representatives. You have before you now a research bill that has twice passed the Senate in somewhat similar form. Dental research is the most important feature of any health program today.

Dr. Hall. Research is about the only tool whereby prevention, control, and improved therapy will alleviate dental illnesses. . . .

Even though research offers hope one should not glibly assume that the answers will be forthcoming in the near future. One must always remember that in decay and pyorrhea one is dealing with chronic diseases. And the cause and prevention of chronic diseases have been strikingly resistant to research methods. Almost all of the spectacular prevention has been in acute diseases such as small pox, diphtheria, typhoid fever, etc. Little progress has been made in preventing chronic afflictions of the heart, circulatory system, brain, and kidney, for example, or in cancer, even though millions have been spent on research to those ends. In fact much more progress relatively has been made in methods of preventing decay of teeth. And most all of the financing of such research, small though it is, has been done to a large extent by dentistry itself. . . .

The main source of any large scale research on dental disease must come from public funds earmarked for that purpose and that purpose alone. Experience shows that it is necessary to have this independent recognition of dental research in the federal government. Moreover it is necessary to specify that scientists trained in dental research plan, direct, and administer

it. Someone will say why be so restrictive? Well, the Federal Government spent $28,000,000 for medical research during fiscal year 1946-47 according to volume 5 of the Steelman Report. Out of this $28,000,000 there were financed seventeen dental researches. The dental schools have very little money for research. There is, therefore, a real shortage of trained dental research workers. This can be materially corrected within a few years by the provision of this bill which permits grants-in-aid to institutions and private individuals as well as the establishment of a central research activity. This bill will provide the needed stimulus to deal effectively with the control and prevention of the most widely prevalent of all human diseases, dental caries and pyorrhea.

Dr. Byrd. I deem it a privilege to appear before this Committee in support of legislation designed to improve the general health of our people. I feel that the proposal before you is one of the most important matters to come before the present Congress. . . .

The American dentist and the dental profession of the United States hold enviable positions among the health service groups. Due to its splendid system of education, its highly organized professional societies, its well educated and highly skilful dentists that represent it, American dentistry stands easily in the forefront of the dental profession throughout the world. Therefore, the American people should not be satisfied until all possible attempts have been made to give the opportunity the dental profession deserves to further improve the dental health care of the people.

Obviously, the first and most important step toward improvement of dental health care is in research. Without the basic understanding of the causes of dental diseases, prevention or cures cannot be effected no matter the quality of existing techniques or the skills of those who employ them. . . .

As I understand it, if this legislation is enacted into law, there will be established at Bethesda, Maryland, an institution to be known as the National Institute of Dental Research, in which it is proposed to coordinate and direct in a general way, all research activities in progress throughout the United States. An important aspect of the bill is that it will center interest in projects to be conducted in the several dental schools of the country, in other suitable institutions and in various other governmental departments interested in such work. However, the principal argument for the Institute is the fact that projects for research can be appraised, dental research activities can be co-ordinated, carefully evaluated and studied in such a way as eventually to achieve effective results that will benefit all the people of the United States.

My own institution, the University of Maryland, conducts a dental school that has in operation a well planned program of dental research. But because of limited physical facilities and limited personnel we are unable to make the progress that it is possible to make under more favorable arrangements. . . .

It is generally recognized by health workers that the dental health of the people must depend upon what might be termed a three-point program; namely, dental research, dental health education, and dental care. The first leg of this tripod is dental research, and until that portion of the program has been put into effective operation, the rest of the program will be hampered. The number of dentists in the United States now or in the near future cannot cope with the problem of serving the total oral health needs of the people; but the current number of dentists or an augmented number will go far in conquering the situation with the aid of the products of successful dental research. . . .

In conclusion may I express the opinion that this Committee and the Congress of the United States could take no firmer step in improving the health of the people of the United States than to approve this legislation. I presume to urge earnestly that this be done.

There were also present in Washington a group of additional advisers consisting of the following: Dr. C. Pankow, of New York; Dr. J. Owen, of New Jersey; Dr. Thomas McDermott, of Ohio, vice-chairman of the Legislative Committee; Dr. Lon Morrey, Dr. Allen Gruebbel and Mr. H. Bain of the Central Office staff.

The hearing on the Dental Research Bill was extremely favorable and it is hoped the bill will be voted out of the committee with unanimous endorsement very soon.

COUNCIL REPORTS ON STATUS OF FLUOROSSTEOL—ARMOUR

FLUOROSSTEOL is a powdered purified bone meal, marketed as 0.32 Gm. (5 grains) tablets and capsules. Most of the fat and some of the protein are removed from the bone in the process of manufacture.

Fluorossteol is stated to contain not more than 0.2 per cent of calcium fluoride. Thus each 0.32 Gm. tablet or capsule would contain less than 0.64 mg. of calcium fluoride or 0.31 mg. of fluorine. By comparison, a liter of water containing 1 part per million of fluorine would provide 1 mg. of fluorine.

The suggested daily dosages are: up to 3 years of age, 0.64 Gm. (0.62 mg. of fluorine) and for ages 4 to 8, 0.96 Gm. (0.93 mg. of fluorine). For older children and for women during the latter half of pregnancy and during lactation, three to six tablets (0.93 to 1.86 mg. of fluorine) daily are suggested. Warning statements customarily required by law are included. The product is marketed as a dietary supplement, with the claim that it is of value in inhibition of dental caries.

Evidence that Fluorossteol is effective in the prevention of dental caries has not been submitted by the firm. The Council is not aware of evidence that bone meal preparations are effective for this purpose.[1]

The manufacturers of Fluorossteol cite a feeding study in which dogs were used as experimental animals.[2] The results of the study are valuable and should stimulate further research. The original article should be read by anyone who wishes to keep abreast of progress in caries research. However, the authors do not claim that the feeding of bone meal powder resulted in any inhibition of caries. It is not proper to transfer the results of the animal feeding experiment to human beings, even by inference, until the findings in animals are confirmed by similar experiments with humans.

The Council voted that Fluorossteol be not accepted for *A.D.R.* The Council will consider new evidence as it becomes available. All decisions of the Council are subject to change in the event that scientific evidence warrants such change.

The Council has authorized publication of this report.

1. Bone Meal Preparations Not Acceptable to the Council. *J.A.D.A.* 34:214. (February 1) 1947.
2. Greenwood, D. A.; Blayney, J. R.; Skinsnes, O. K., and Hodges, P. C., Comparative Studies of the Feeding of Fluorides as They Occur in Purified Bone Meal Powder, Defluorinated Phosphate and Sodium Fluoride, in Dogs. *J. D. Res.* 25:311 (October) 1946.

ANNOUNCEMENTS

MEETINGS OF STATE SOCIETIES

State	Date	Place	Secretary	Address
Alabama			G. W. Matthews	1922 Tenth Ave., S., Birmingham 5
Arizona			B. K. Litt	68 E. Congress, Tucson
Arkansas	May 2-5	Little Rock	D. M. Hamm	Clarksville
California			L. E. Linehan	450 Sutter St., San Francisco
S. California			M. E. Ralston	903 Crenshaw Bldg., Los Angeles 6
Colorado	June 14-16	Glenwood Springs	R. A. Downs	724 Republic Bldg., Denver 2
Connecticut	May 19-21	Hartford	E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware			G. Zurkow	301 Medical Arts Bldg., Wilmington 9
D. of Columbia			K. H. Wood	202-1835 Eye St., N. W., Washington
Florida	Dec. 12-15	Hollywood	J. I. Todd	433 St. James Bldg., Jacksonville
Georgia	Oct. 11-13	Augusta	J. M. Heard, Jr.	Persons Bldg., Macon
Hawaii	Oct. 28-31	Lihue	J. H. Dawe	P. O. Box 39, Honolulu 10
Idaho			R. Sutcliff	Twin Falls
Illinois	May 20-22	Springfield	P. W. Clopper	623 Jefferson Bldg., Peoria 2
Indiana	May 17-19	Indianapolis	L. E. Ewbank	Kingman
Iowa	May 3-5	Des Moines	A. N. Humiston	417 Higley Bldg., Cedar Rapids
Kansas	May 2-5	Wichita	F. A. Richmond	1008 Huron Bldg., Kansas City
Kentucky			J. L. Walker	640 Barbee Way, S., Louisville
Louisiana			J. S. Bernhard	407 Medical Arts Bldg., Shreveport
Maine	June 6-8	Portland Springs	P. W. Anderson	32 Deering St., Portland 3
Maryland	May 3-5	Baltimore	J. H. Shackelford	706 Baltimore Life Bldg., Baltimore 1
Massachusetts	May 3-6	Boston	P. E. Adams	227 Commonwealth Ave., Boston 16
Michigan			F. Wertheimer	Michigan Department of Health, Lansing
Minnesota			C. V. E. Cassel	Lowry Medical Arts Bldg., St. Paul
Mississippi	May 31-June 2	Biloxi	F. C. Sneed	Osyka
Missouri			C. W. Digges	Exchange National Bank Bldg., Columbia
Montana	May 6-8	Great Falls	C. S. Renouard	305 Phoenix Bldg., Butte
Nebraska	May 10-12	Omaha	F. A. Pierson	Federal Securities Bldg., Lincoln
Nevada			L. G. Jacob	505 Chestnut St., Reno
New Hampshire	June 27-29	Jefferson	F. E. Williams	814 Elm St., Manchester
New Jersey			J. G. Carr	407 Cooper St., Camden
New Mexico	May 24-26	Santa Fe	J. S. Eilar	First National Bank Bldg., Albuquerque
New York	May 10-13	Syracuse	C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina			R. F. Hunt	Rocky Mount
North Dakota	May 9-12	Minot	A. L. Smeby	Northwood
Ohio	Nov. 7-10	Columbus	E. G. Jones	185 E. State St., Columbus
Oklahoma			E. W. Wise	Medical Arts Bldg., Tulsa
Oregon			W. H. Hurley	407 Selling Bldg., Portland 5
Panama Canal Zone			T. W. Cagle	Box 243, Cocoli
Pennsylvania	May 11-13	Atlantic City, N.J.	E. R. Aston	421 Market St., Kingston
Philippine I.			G. A. Carreon	9 Broadway, Third St., N. Manila
Puerto Rico			E. Capo	9 Villa St., Ponce
Rhode Island			S. Ozarin	172 Thames St., Newport
South Carolina	May 2-4	Greenville	J. R. Owings	201 E. North St., Greenville
South Dakota	May 9-11	Sioux Falls	E. W. Elmen	Sioux Falls
Tennessee	May 24-27	Memphis	E. J. Justis	Exchange Bldg., Memphis
Texas			W. Ogle	313 Medical Arts Bldg., Dallas
Utah			S. Ballinger	1001 Tribune-Telegram Bldg., Salt Lake City
Vermont	May 23-25	Woodstock	J. A. Larrow	Middlebury
Virginia			J. E. John	804 Medical Arts Bldg., Roanoke
Washington			F. J. Dingler	1502 Medical & Dental Bldg., Seattle 1
West Virginia	May 20-22	Clarksburg	C. J. Gavelda	Clarksburg
Wisconsin			R. A. Mason	964 N. 27th St., Milwaukee
Wyoming			J. D. McNiff	208 Grand Ave., Laramie

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

State	Date	Place	Secretary	Address
Alabama	June 14-18	Birmingham	M. W. Gaillard	Merchants Bank Bldg., Mobile
Arkansas	June 21-24	Little Rock	H. E. Hanna	National Bank of Commerce Bldg., El Dorado
California	June 14 July 26	Los Angeles San Francisco	K. I. Nesbitt	Room 307, 507 Polk St., San Francisco 2
Colorado	June 21-25	Denver	E. G. Netherton	724 Republic Bldg., Denver 2
Connecticut	June 15-19	Hartford	C. G. Brooks	302 State Street, New London
Delaware	June 23-25	Wilmington	P. K. Musselman	Newark
D. of Columbia	June 15-19	Washington	H. A. Swanson	1726 Eye St., N. W., Washington 6
Florida	June 28-July 3	Jacksonville	A. W. Kellner	P. O. Box 155, Hollywood
Indiana	June 14-17	Indianapolis	C. A. Frech	Gary National Bank Bldg., Gary
Kansas	June 7-10	Kansas City, Mo.	G. L. Teall	Hiawatha
Kentucky	June 21-24	Louisville	R. I. Todd	Western Union Bldg., Richmond
Michigan	June 7-12	Ann Arbor	J. L. Champagne	502 David Whitney Bldg., Detroit 26
Mississippi	June 15		J. C. Boswell	508 Lamar Life Bldg., Jackson
Nebraska	May 24-27	Lincoln and Omaha	C. A. Bumstead	924 Stuart Bldg., Lincoln
Nevada	May 10-11	Las Vegas	L. G. Jacob	505 Chestnut St., Reno
New Mexico	June 21-24	Sante Fe	J. J. Clarke, Sr.	Artesia
North Carolina	June 28-July 1	Raleigh	F. O. Alford	1109 Liberty Life Bldg., Charlotte 2
Oklahoma	June 14	Oklahoma City	N. D. Griffith	509 Medical Arts Bldg., Oklahoma City
Ohio	June 28-July 3*	Columbus Cleveland	E. D. Lowry	79 E. State St., Columbus
Oregon	June 7-10	Portland	F. L. Utter	506 Pioneer Trust Bldg., Salem
Pennsylvania	June 10-16†	Philadelphia and Pittsburgh	R. E. V. Miller	Northampton National Bank Bldg., Easton
South Carolina	July 8-11		E. G. Bumgardner	1517 Hampton St., Columbia 29
Tennessee	June 7-11	Memphis	J. J. Vaughn	1005-6 Medical Arts Bldg., Nashville
Texas	June 6-11	Houston	R. T. Weber	312 Capital National Bank Bldg., Austin
Virginia	June 15	Richmond	J. M. Hughes	715 Medical Arts Bldg., Richmond 19
West Virginia	June 21-24		R. H. Davis	510-16 Goff Bldg., Clarksburg
Wyoming	June 24	Rock Springs	W. J. Ryan	1720 Carey Ave., Cheyenne

*Dental and dental hygiene examination.
†Written, June 14-16 (dental); June 14-15 (hygienists). Clinical, June 10-12 (dental); June 16 (hygienists).

OTHER MEETINGS

Name	Date	City	Secy. or Chm.	Address
Alpha Omega Fraternity, National Council Meeting	May 8-9	Boston	B. E. Gruber Secy.	147 West 42nd St., New York 18
American Academy of Dental Medicine, Annual Meeting	June 12-13	New York	W. Greenhut Secy.	124 East 84th St., New York

American Association of Dental Schools	June 21-23	Buffalo	J. E. Buhler Secy.	School of Dentistry, Temple University, Philadelphia 40
American Dental Association, Eighty-Ninth Annual Meeting	Sept. 13-17	Chicago	H. Hillenbrand Secy.	222 E. Superior St., Chicago 11
American Dental Society of Europe	July 27-30	London	K. C. Campbell Secy.	88 Portland Place, London, W. 1
Cleveland Dental Society, Annual Spring Clinic Meeting	May 3-5	Cleveland	P. J. Warren Pub. Chm.	14805 Detroit Ave., Cleveland 15
Federation Dentaire Internationale, Annual Meeting	August 3-7	Dublin, Eire	M. W. Watry Secy.	35 Rue Souveraigne, Brussels, Belgium
Medical Library Association, Fiftieth Annual Meeting	May 28-30	Philadelphia	M. Edna M. Poole Secy.	288 Bloor St., W., Toronto 5, Ontario
National Convention of Canadian Dentists	June 20-24	Quebec	G. Ratte Gen. Chm.	140 St. John St., Quebec, P. Q.
National Dental Association, Thirty-Fifth Anniversary	August 9-13	Newark, N. J.	J. A. Jackson Secy.	Box 197 Charlottesville, Va.
Ontario Dental Association Convention, Eighty-First Annual Meeting	May 17-19	Toronto	D. Jutton Secy.	86 Bloor St., West, Toronto
Pacific Coast Dental Conference	June 12-16	Salt Lake City	L. O. Halgren Secy	First National Bank Bldg., Salt Lake City
University of Louisville, Dental Alumni Group, Northeastern Area	May 9	New York	M. S. Kirschner Secy.	128 Deer Park Ave., Babylon, L. I.
University of Pennsylvania Dental Alumni Society, Annual Meeting	June 10	Philadelphia	L. Dill Secy.	Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania Philadelphia 4

THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION
222 East Superior Street, Chicago 11, Illinois
WHItehall 6730 Cable Address: ADAECO

Lon W. Morrey, Editor **John J. Hollister, Business Manager**

All expressions of opinions and all statements of supposed facts are published on the authority of the writer over whose signature they appear, and are not to be regarded as expressing the views of the American Dental Association, unless such statements or opinions have been adopted by the Association. *Articles* are accepted with the understanding that they have not been published previously and that they are submitted solely to THE JOURNAL. *Advertising:* All products coming within the scope of the Council on Dental Therapeutics of the American Dental Association must be acceptable to the Council in order to be advertised in THE JOURNAL. Subscription is included in the annual membership dues of the American Dental Association. The subscription rate is $7 a year payable in advance for domestic subscriptions and $8 a year for foreign subscriptions. *Notice of change of address* should be received one month before the change is to be effective.